IRELANDS NATURALL HISTORY.

Being a true and ample Deſcription of its Situation, Greatneſs, Shape, and Nature; Of its Hills, Woods, Heaths, Bogs; Of its Fruitfull Parts and profitable Grounds, with the ſeverall ways of Manuring and Improving the ſame:

With its Heads or Promontories, Harbours, Roads and Bays; Of its Springs and Fountains, Brooks, Rivers, Loghs; Of its Metalls, Minerals, Free-ſtone, Marble, Sea-coal, Turf, and other things that are taken out of the ground.

And laſtly, of the Nature and temperature of its Air and Seaſon, and what diſeaſes it is free from, or ſubject unto. Conducing to the Advancement of Navigation, Husbandry, and other profitable Arts and Profeſſions.

Written by *Gerard Boate*, late Doctor of Phyſick to the State in *Ireland*.

And now Publiſhed by

SAMUELL HARTLIB, Eſq;

For the Common Good of *Ireland*, and more eſpecially, for the benefit of the Adventurers and Planters therein.

Imprinted at *London* for *John Wright* at the *Kings Head* in the Old Baily, 1657.

IRELAND'S
NATURAL
HISTORY.

To His Excellency

OLIVER CROMWEL,

Captain Generall of the *Common-wealths Army* in *England*, *Scotland* and *Ireland*, and Chancellor of the University of *OXFORD.*

AND

To the Right Honorable

CHARLES FLEETWOOD,

Commander in Chief (under the *Lord Generall Cromwell*) of all the Forces in *IRELAND.*

Right Honorable,

IT is a very great and signal Truth, that *all the works of God* are both wonderfull and precious, *much sought out by all those that love him*: and it is the guilt of the wicked, that as *they regard not the Lord*, so they *consider not the Operation of his hands*; for the Lord hath re-

Rom. 1. 20 *Sealed his Truth, even his Godhead and his Eternall Power* by his Workes, that ſuch as reſpect him not, in the Creation of the World, and in the wayes of his Providence, may be without excuſe: Now it ſeems to mee, that the end for which God hath not left himſelf without a Teſtimony in Nature, is not onely, that we ſhould in our ſpirit *glorifie him as God* Act. 14. 17 *and be thankfull*, but that alſo our Outward Man ſhould bee made ſenſible of his goodneſs, and partake of that ſupply of life, which by his appointment the Creature can yeeld unto us, *if happi-* Act. 17. 27 *ly wee may feel after him and find him therein.* So that ſuch as reſpect him not in his wayes of Nature, being careleſs to ſeek them out, do make themſelves alſo incapable of the bleſſings of Nature through their ignorance and neglect of the good things which God hath provided for them thereby: *for all things are Ours, things preſent and things to come*; and *Godlineſs hath the promiſe of the life that now is aſwell as of that which is to come*: for as by the act of Faith we are made capable of the good things of the life to come, becauſe by the truth of God, as it is the Object of our Faith, they have a ſpirituall being and Subſiſtence in us;

so by the act of Reason rightly ordered we are made partakers of the benefit of this life, because by the effect of Gods Wisedom and Power in Nature, as they are the Objects of our Reasonable faculties, they have a bodily being and subsistence in us: and as the Wisdom of God doth many wayes manifest it self, not only in Spirituall but also in Outward and Bodily things, so there are many parts of Humane Learning, some whereof are subservient to the Private life of a single man, some to the comforts and Publick Use of a Societie, and amongst all these parts of Learning, which relate to a Society, I can conceive none more profitable in Nature, than that of Husbandry. For whether we reflect upon the first settlement of a Plantation, to prosper it, or upon the wealth of a Natio that is planted, to increase it, this is the Head spring of al the native Commerce & Trading which may bee set afoot therein by any way whatsoever. Now to advance Husbandry either in the production and perfectio of earthly benefits, or in the management thereof by way of Trading, I know nothing more usefull, than to have the knowledg of the Natural History of each Nation advanced & perfected: For as it is no

dent, that except the benefits which God by Nature hath beſtowed upon each Country bee known, there can be no Induſtrie uſed towards the improvement and Huſbandry thereof; ſo except Huſbandry be improved, the induſtrie of Trading, whereof a Nation is capable, can neither be advanced or profitably upheld.

There is a twofold body, and a twofold life in man, which God hath created, the one is Naturall, the other Spirituall, & the Apoſtle tells us, *that the Spirituall is not firſt, but the Naturall, and afterward that which is Spirituall*; as the Bodies and lives of men are ordered by God, ſo we muſt conceive of the frames of their Societies, that the Naturall is before that which is Spirituall, & that in Gods aime it is a preparatory thereunto; although in the uſe which men make thereof, this aime is not obtained: for ſeeing *in the wiſdom of God, the world by wiſdome hath not known God; therefore God is pleaſed by another way which to the World doth ſeem fooliſhneſs, to manifeſt his Power and his Wiſdome unto ſalvation*, namely *by the Preaching of the Goſpel in the name of Ieſus Chriſt, and him crucified*; and although hitherto, ſince the death of Chriſt, the diſpenſation

1 Cor. 15. 46.

1 Cor. 1. &c.

on of wiſdome hath not yet opened the conduit pipes of Natural Knowledge to cauſe the ſouls of men flow forth & partake of the life of God therein, by reaſon of the prevalencie of Senſuall inclinations, & of the want of due reflection upon Chriſt, in whom alone the perfect uſe of Nature is brought home to the glory of the Father, by the Spirit, yet when the time of *the Reſtauration of all things, ſhall come from the preſence of him, who will come ſhortly and will not tarry*, then the works of the Devill, whereby he hath brought us, & the whole Creation, under the bondage of Corruption, ſhall be deſtroied, & when the Nature & right uſe of the Creature by his meanes obſcured, ſhall be revealed, then alſo the properties and application of the Creature *in the glorious liberty of the ſonnes of God*, ſhall be ſubjected unto Grace.

Theſe great and mighty Changes, which God is making in the Earth, do tend to break the yokes of Vanity, and to weaken the Power, which hath wreathed the ſame upon the necks of the Nations, theſe Changes ſeem to me to preſage the neer approaches of this Liberty, and the advancement of the ways of Learning, whereby the Intellectuall

Cabinets of Nature are opened, and the effects therof discovered, more fully to us, than to former Ages, seem in like manner to prepare a plainer Address unto the right use thereof for us than our forefathers have had: which will be effectuall to the manifestation of Gods Wisdome, Power, and Goodness, when the great promises shall be accomplished, *that the*
Isa. 11. 9. *Earth shall be filled with the knowledge of*
Heb. 8. 11. *the Lord, as the waters cover the sea, & that we shall be taught of God, from the least to the greatest:* and although *the Father hath reserved in his own hand the times and seasons*, wherin these promises are to be fulfilled, yet as by the dawning of the day we can know that the Sun is neer rising, so by the breaking of yoakes & the breaking forth of the meanes of more perfect knowledge, both in Natural and Spiritual things, wee may see the drawing neer of the promises, which will in their own times Constitute *the day of*
Isa. 40 5. *Salvation unto all the Earth; wherein all flesh shall see the glory of the Lord together.*

The expectatiou of this day is *the hope of Israel*; and those that wait for the Lord, and his appearance therein, shall find a plentious redemption; namely such as having this hope *purifie themselves*

ſelves that they may be found in peace at his appearing, and ſuch as being ſolicitous to beſtow their Talents in their way and generation, to the advancement of his approaching Kingdom, ſhall approve themſelves as faithfull ſervants to him in that day. Of this Number I am perſwaded your Honours are in theſe Nations as Leading Men; therefore I have made bold thus to addreſs my ſelf unto you, and to inſcribe this Work unto your Names, that it may ſee the light under your joint patronage. God hath made You very eminent Inſtruments to ſet forward one part of the preparatives of his great Work, the Breaking of our yokes, the other part, which is the Advancement of Spirituall and Natural ſanctified Knowledge, your Zeal, I am ſure will carry you to countenance by the wayes which Providence ſhall open unto You. Therefore I hope it wil not be without acceptance, what in this kind (though but a mean beginning) I have here offered. Your influence upon it, to ſet forward Learned Endeavours of this Nature for a Publick Good may be a bleſſing unto Poſteritie, and your Relations of Eminent note, unto *Ireland*, to watch for the good therof,

and

and to the Universities of *Oxford* and *Dublin*, to countenance all the Meanes of profitable Learning, have encouraged me to make this Dedication; besides the expressions of your Honours willingness, to favour me in my undertakings, which I knew no way so well to resent, as by offering to your Generous Inclinations, the Objects, which are worthy of being considered and set forward in order to a common good. I lookt also somewhat upon the hopefull appearance of Replanting *Ireland* shortly, not only by the Adventurers, but happily by the calling in of exiled *Bohemians* and other Protestants also, and happily by the invitation of some well affected out of the *Low Countries*, which to advance are thoughts suitable to your noble genius, and to further the setlement thereof, the Naturall History of that Countrie will not bee unfit, but very subservient. Thus beseeching the Lord to prosper all your undertakings to the glory of the Kingdom of Christ, I take my leave, and rest unfeignedly

Your Honours most
humble servant,

SAMUEL HARTLIB.

To the Reader.

Gentle Reader,

SOme particulars there are concerning this following Work, of which I think it fit you should be advertised: and for as much as I can tell you no more of them than what was written to me by the Authors most Loving and Learned Brother, give me leave in stead of mine own Words to present you with his said Letter on that subject, being such as doth follow.

Sir,

I Am very glad to understand by you, that my Brothers work of the Naturall History of Ireland, is not only not lost, as I greatly feared it was, and that you have found it in perusing those books and papers of his, which he had left behind him at London; but that you are a going to print it, and have already contracted about it: by the doing whereof I am fully perswaded, that

you

you will gain both credit and contentment, and that those shall no wayes be losers, who will bee at the charges of doing the same. For though I say it, the work is excellent in it's kind, as not only full of truth and certainty, but written with much judgment, order, & exactnes; so as it is to be preferred before most Naturall Histories of particular Countries, and may well be equalled to the very best, for as much as there is done of it. For to make it a compleat Naturall History, there should be joyned to that which my Brother hath gone through, two Books more, the one of all kind of Plants, and the other of all sorts of living Creatures, which also might have been expected of him if God had given him longer life. For he intended, assoon as he had published this part, to have fallen also to the rest, if he had found that he had not lost his labour on what was done already, & that it had met with a gratefull acceptance abroad, such as might have incouraged him to take further paines about the perfecting of it: in which case he was resolved to have also joined a Fourth book to those other Three, concerning the Natives of Ireland, and their old Fashions, Lawes, and Customes; as likewise the great paines taken by the English, ever since the Conquest, for to civilize them, and to improve the Countrie. You say you wonder, & others may justly concurre with you in that your wonderment, how a Countrie could bee so accurately described by one, who never was in it. For although my Brother hath been in Ireland, and that he hath ended his dayes there, yet he had both begun and finished this First Book of his Naturall History of Ireland, some yeares before he went thither-

thither, or had any thoughts of doing so: seeing that he begun to write that work in the beginning of the year of our Lord 1645. and made an end of it long before the end of the same year: whereas he went not to Ireland untill the latter end of the year 1649. & dyed at Dublin within a very short while after he was arrived there, viz. on the $\frac{2}{19}$th of Ianuary $16\frac{4}{5}9$. Now to answer that difficulty moved by you, be pleased to know, that I being come from Dublin to London in the beginning of May 1644. and having stayed there untill the latter end of October, great part of that conversation, which he and I had together during those six months, was spent in reasoning about Ireland, and about all manner of particulars concerning the Morall and Civill, but chiefly the Naturall History of the same: my Brother beeing very carefull to inform himself of me, about all things appertaining thereunto. For besides that his curiositie, which was very great for to enrich his mind with all manner of laudable knowledge, was of it self alone capable enough for to make him inquisitive in that kind; he was therebesides led thereto by his own interest, having ventured great part of his estate upon the escheated lands there, according to the severall Acts made by the King and Parliament in that behalf. And having set down in writing what he had so heard of me, he conferred afterwards about the same with severall of those Gentlemen, whom the bloody combustions of Ireland had driven away thence, and made to resort to London; he beeing very well acquainted with them, especially with Sir William Parsons, and Sir Richard Parsons, which two having above all others a very perfect in-

insight into that land, & into all matters belonging to the same, were wonderfull well able to satisfie any of those Questions, which from time to time he proponnded unto them, either about those things that he had already learned of me, or about such others, of which hee had forgot to speak to me, or on which I had not been able fully to inform him. In this maner he brought that Work together, the which to accomplish yet further, he sent to me still as much as he had finished, desiring me to review it diligently, and to adde, put out, or alter, what I should see cause: wherein also, as in the first informations, I was not wanting to contribute what ever was necessary, as far forth as my knowledge did reach unto, and according to those Observations, unto which I had very studiously and with singular delight applied my self during those eight yeares that I lived in that Iland: whereunto I had so much the more opportunity, because that as my constant abode was in Dublin, so I made very many journeys into the Countrie, & by meanes thereof saw great part of it, especially of the Provinces of Leinster and Ulster, and by reason thereof also it would be an easie matter for me, to make-up those parts of this work, which are still wanting. Thus I beleeve to have fully taken away the forementioned Objection, and to have given you as perfect an account about the grounds & the manner of the writing of this Naturall History, as was expected by you. And having nothing else to trouble you with all at the present, I shall end these with my most hearty wishes, that notwithstanding any discouragements, or any want of incouragement, you would still goe

on

on in that moſt commendable purpoſe, of furthering as much as in you lieth all manner of reall and profitable knowledge: the which indeed hitherto you have done ſo largely on very many occaſions, as muſt needs greatly redound to the generall good of Mankind, and make your memory precious to them in all future ages.

Your moſt affectionate

Paris $\frac{10}{20}$ *Aug.*

and humble ſervant

ARNOLD BOATE.

IRELANDS NATVRALL HISTORY.

CHAP. 1.

Of the ſituation, ſhape, and greatneſs of Ireland: it's diviſion into Provinces and Counties: of the Engliſh Pale: the principall townes of that Nation.

Sect. 1. *Situation of* Ireland.

IReland, by the Iriſh themſelves called *Erin*, and by their neighbours the Welſh *Iverdon*, lyeth in the North-weſt Ocean, having on the Weſt-ſide no land nearer than *America*, or the Weſt-Indies; and thereof that part, which above *Nova francia* and *Canada* running North-ward, hath of the Engliſh received the name of *New-Britain*, but of other Nations before of *Terra Laboratoris*. The next land over againſt it on the South is *Galicia*, one of the Kingdomes of Spain; from which it lyeth

eth divided some dayes sayling. Northwards it hath the Scotish Hands; by the Geographers called Hebrides or Hebudes; the principall of which are Eust, Lewis, Skye, Ila, & Mula. On the East-side is Great-Brittain, and all the three parts of it, to wit part of Scotland, the whole West coast of England, and all Wales.

Sect. 2. *Distance betwixt Ireland and severall places upon the coast of Great-Britain.*

The Sea, which parteth Ireland from Great-Britain, being of a very unequall breadth, is more narrow in the North-end, less in the South-end, but broad in the midst, as farre as it washeth the the English coast, being the full length of the two Counties of Cumberland and Lancashire, opposite against which are situated in Ireland the Counties of Down, Lowth, and Dublin. The Sea which is inclosed betwixt these Counties, & compriseth in its middle the Ile of Man, is wel neer of an equall and uniform breadth every where, not beeing in any place much broader or much narrower, than it is betwixt the havens of Dublin & Leverpoole, the distance betwixt which two is reckoned by the English Pilots to be of fortie leagues, or sixscore English miles. But Wales in two or three places commeth a great deal neerer to Ireland, and in some as neer again. For Holy-head, being the most Westerly corner of the Northerliest part of Wales, called Anglesey, lyeth just half way between Dublin & Lerpoole or Chester, being twenty Leaguer, or three score miles, from Dublin, and ten or twelve houres sayl with a reasonable good wind; which distance is no greater, than what the eye may very

well

very well reach: for a man whose sight is but of an ordinary goodness, may at any time in clear weather with ease discern the high and mountainous coast of Wales from the top of the Dublin mountaines. And about the same distance, as is betwixt Dublin and Holy-head, is also betwixt St. Davis-head, a Promontory of Pembrookshire (which shire is situated in the most South-west part of Wales) and the Irish Promontory in the County of Wexford, which the Natives call Cancarne, and the English Sea-men Tunkard-point. Also the Promontory of Caruarvan in Wales, called Brachipult-point, and lying betwixt Holy-head and St. Davis, is well neer at the same distance from the next Irish shore, as either of those other Welsh Promontories. But between Brachipult-point and Saint Davis-head the Sea doth much inlarge it self (although nothing so much as betwixt Ireland and England) making a great inlet on the coast of Wales, the which here retireth it self a great way backwards; whereas to the contrary the Irish shore, which lyeth opposite to it, extendeth it self in an equall manner without any great Bayes or inlets.

As for the North part, where Ireland & Scotland are neighbours, there this Sea groweth very narrow; insomuch as Galloway, a County in that part of Scotland, is distant with its most westerlie shoare from the Ardes (a little country and demy-iland so named in the most Northerlie part of the County of Down in Ireland) not above five Leagues; which space the open boats, wherein they ordinarily here doe pass from the one kingdome into the other, use to sail in three

or four houres time: and Cantire, another Foreland on the Weſt ſhore of Scotland, more to the North than Galloway, is neerer yet unto Ireland: ſo that in theſe two places the one Nation may perfectly bee ſeen and diſcerned out of the other at all times, whenſoever it is no very dark gloomie weather.

Sect. 3. *Shape and bigneſs of Ireland.*

The ſhape of this Iland is long-waies ſquare, but not fully: for to ſay nothing of ſeverall corners and Forelands, which run out a great way into the Sea, nor of divers great Bayes and Inlets, which the ſea maketh here and there, in the three other parts of this Iland; the fourth part, called Munſter, doth greatly alter that figure; for in lieu of ſtretching it ſelf firſt from the North to the South, & then from the South to the Weſt, it runneth altogether ſloping from the North-eaſt to the South-weſt; and there beſides it ſtretcheth it ſelf much further into the Sea with its Weſtern ſhores, than any other part of Ireland on the ſame Weſt-ſide.

As for the bigneſs thereof, queſtionleſs it is to be reckoned among the chief Ilands of the whole World; and of Europe the principaleſt of all, except only Great-Britain, the which is more than twice as big: for being as long again, as it is broad, it is at the narroweſt (which is juſt in the middle, where Dublin is ſituated) no leſs than an hundred miles broad; ſeeing that Atlone, which lyeth juſt half way betwixt the two Seas, is fifty miles diſtant from Dublin; and in Vlſter, where Ireland is at its broadeſt, it is in moſt places ten, or twelve, and in ſome twenty miles

broad-

broader. In the length, if from the middle of the Northern coaſt one doe go directly Southward, one ſhall find it to be about two hundred miles. But if you ſhape your courſe more to the Eaſt, the length will be found leſs by ſome miles, becauſe the coſt of Munſter runneth ſo ſloping, as we have ſaid before: and to the contrary, if one meaſure the length of Ireland more to the Weſt, it will be found to bee a great deal more than two hundred miles. And if the meaſure were taken not through the inland-parts, as now we have framed it, but all along the ſea-ſhore, the length would amount to a great deal more than what now we have declared (as well on the Eaſt as on the Weſt ſide) in regard of the inequality of the coaſt, and of the great Bayes and Fore-lands, which make it in moſt places very much run out to the ſeaward, or into the landward: for which ſame reaſon the circuit of the whole Iland, taken alongſt the ſhoare, is by far greater, than otherwiſe the proportion of its length and breadth would ſeem to require. The Miles here mentioned muſt bee underſtood not of the cõmon Engliſh ones, three wherof make one League, or Holland mile, but of the Iriſh, the which are about one fifth part bigger, ſo as five Iriſh miles doe amount to about ſix Engliſh.

Sect. 4. *Diviſion of Ireland into Provinces and Counties.*

This Iland is divided into four principall parts, called Provinces, *viz.* Vlſter, Leinſter, Connaught, and Munſter: of which the firſt and the laſt extend themſelves from the one ſea to the other, Vlſter in the North, and Munſter in the

South. Leinster & Connaught, lying betwixt those two forenamed Provinces, have the sea only on one side; Connaught on the West, and Leinster on the East. To these four most Writers and Records add a fifth, called Meath; but that is really a part of Leinster, and ordinarily now is held to be such.

Each of these Provinces is again divided into divers Counties. Vlster hath eleven, whereof six on the sea-side, *viz.* Fermanagh, Doneghall *alias* Tirconnel, Colraine, Antrim, Down, Lowth; and five within the land, *viz.* Cavan, Monaghan, Armagh, Nether-Tirone, & Upper-Tirone. Leinster comprehendeth likewise eleven Counties, Dublin, Wickloe, and Wexford on the sea-side, East-Meath, and Catherlogh or Carlo within the land, but with a little nook reaching unto the sea; West-Meath, Kildare, Kilkenny, Kings-county, Queenes-county, and Longford altogether within the land. Munster is divided into six Counties, two within the Land, *viz.* Tipperary and Limmerick; and the other four, Waterford, Cork, Desmond, and Kerry, situated on the sea-side, but stretching themselves a great way into the land. In Connaught there be six Counties, *viz.* Clare *alias* Tomond, Galloway, Majo, and Sleigo, situated on the Sea, and Roscomen, and Letcim within the land

Sect. 5. *Of the English Pale.*

There is yet another division of Ireland, whereby the whole land is divided into two parts, The English Pale, and the Land of the meer Irish. The English Pale comprehendeth only four Counties, one whereof is in Vlster, *viz.* Louth,

Louth, and the other three in Leinster; to wit Meath, Dublin, and Kildare: the originall of which division is this. The English at the first conquest, under the reign of Henry the second, having within a little time conquered great part of Ireland, did afterwards, in the space of not very many yeares, make themselves masters of almost all the rest, having expelled the natives (called the Wild Irish, because that in all manner of wildnesse they may bee compared with the most barbarous nations of the earth) into the desart woods and mountains. But afterwards being falln at ods among themselves, and making severall great warres the one upon the other, the Irish thereby got the opportunitie to recover now this, and then that part of the land, whereby, and through the degenerating of a great many from time to time, who joining themselves with the Irish, took upon them their wild fashions and their language, the English in length of time came to bee so much weakened, that at last nothing remainted to them of the whole Kingdome, worth the speaking of, but the great Cities, and the forenamed four Counties; to whom the name of Pale was given, because that the authority and government of the Kings of England, and the English Colonies or Plantations, which before had been spread over the whole Land, now were reduced to so small a compass, and as it were impaled within the same. And although since the beginning of this present age, and since King *James* his comming to the Crown of England, the whole Iland was reduced under the obedience and government of the English Lawes, and replenished with English and

Scotch

Scotch Colonies; nevertheles the name of Englifh Pale, which in the old fignification was now out of feafon, remained in ufe, and is fo ſtill, even ſince this laſt bloody rebellion, wherein the inhabitants of almoſt all the Pale, although all of them of Engliſh deſcent, have conſpired with the Native Iriſh, for to ſhake off the Government of the Crown of England, and utterly to extinguiſh the Reformed Religion, with all the profeſſors thereof, and quite to root them out of Ireland.

Sect. 6. Cities and chief Townes of Ireland.

This Iland hath in it ſeverall Cities, among which Dublin is the principall, beeing the chief City of the whole Commonwealth, the Refidence of the Governour, the Counſell of State, all the Great Officers, the Exchequer, Judges, and Courts of Iuſtice; beeing alſo adorned with an Vniverſitie, the onely in all Ireland. It is ſituated in the Province of Leinſter, about the middle of the length of Ireland (as already hath been mentioned) not far from the Sea, an Inlet whereof maketh a harbour for this City; which harbour, although none of the beſt of Ireland, (whereof in the next chapter but one ſhall bee ſpoken more at large) is nevertheleſſe frequented with more ſhips, and hath greater importation of all things, than any other Haven in the Kingdome; by reaſon that all ſorts of commodities are much more readily & in greater plenty vented here than any where elſe, what in the City it ſelfe, beeing great and populous, what into the country, for in the time of peace almoſt all Leinſter and and Vlſter were wont to furniſh themſelves from

Dublin

Dublin of all kinds of provisions and necessaries, such as were brought in out of forrein Countries.

Next to Dublin is Galloway, the head-citie of the Province of Connaught, to bee reckoned, as well for bigness and fairenes, as for riches; for the streets are wide, and handsomely ordered, the houses for the most part built of free-stone; and the inhabitants much addicted to trafick, doe greatly trade into other countries, especially into Spain, from whence they used to fetch great store of wines and other wares every year.

In the third place commeth Waterford, situated in the province of Munster; and in the fourth Limmerick, the head-city of the said Province, both towns of trafick, situated on goodly havens, and of reasonable bigness and handsomness.

Cork, in the Province of Munster, and London-derrie, in the Province of Ulster, are less than any of the formentioned, but otherwise handsome places, well built, & very fitly situated for trafick and navigation, as standing upon very good Havens.

As for the rest of the Townes, Drogheda, Kilkenny, and Bandonbridge are passable and worthy of some regard both for bigness and handsomeness: But Colrain, Knockfergus, Belfast, Dundalk, Wexford, Youghall, and Kinsale are of small moment, the best of all these being hardly comparable to any of those fair Market-townes, which are to be found in almost all parts of England. And as for Cassel, Rosse, Lismore, Clonmell, and Kilmallock in Munster; Sleigo and Atlone in Connaught; Molingar, Trimme,

Kels

Kels, Naven, Aboy, Nace, Carlo, Arklo, and Wicklo in Leinster; Carlingford, Ardee, and Down in Vlster, all of them walled Townes; they are scarce worth the mentioning, because there are few Market Townes in England, even of the meaneſt, which are not as good or better, than the beſt of them all. We could give a more perfect relation of this particular: but becauſe this ſerveth little to our purpoſe, and properly doth not concern the Naturall Hiſtory, wee have thought it beſt to touch it but briefly.

CHAP. II.

Of the principall Havens of Ireland.

Sect. 1. *Waterford Haven.*

THe Havens of *Ireland* are ſo many in number, and for the moſt part ſo fair and large, that in this particular hardly any land in the whole World may be compared with this, as will eaſily appear by the particular rehearſall thereof, which we are now to make, firſt of the beſt and chiefeſt in this Chapter, and of the others in the next. We ſhall begin with Waterford Haven, the which being ſituated on the confines of Leinſter and Munſter, runneth ſome ſeven or eight miles into the land, not winding or crooked, nor with any great nookes or inlets, but almoſt in a ſtraight line, (extending in it ſelf North and North by Weſt) and in moſt parts of an equall breadth, all the way deep and clear, having no roks or ſands, but onely two or three little ones, which lying not acroſs nor in the midſt, but by the ſides,

may

may be shunned very easily. Without the Harbour it is eleven and twelve fathoms deep, in the mouth seven and more, inwards six fathoms. Within the Easterly corner is a good road, in four or five fathoms; and on the other or Westerly side, five or six miles from the mouth, is another good road, very commodious as well for them who goe forth, as those that will sail upward to Waterford. Upon the East-side, about halfe-way the length, lyeth a very strong Castle called Duncannon, which so commandeth this Harbour, as no ships can go up or down against the will of those in the Fort, without running extreme hazard,

This Haven in the end divideth it self into two armes, both a great deal inferiour to the principall harbour in breath and depth, but yet such as are capable of ships of a good big port, especially the left, which runneth Westward to the City of Waterford, whereof this whole Haven beareth the Name, being situated some four or five miles from that division, and a little below the place where the river Shure falleth into this Harbour. The right arm being the mouth of the river Barrow, and extending it self straight along, goeth up to Ross, (a Town in former times famous for trade) the which is much about the same distance from this division, as the division is from the mouth of the Harbour.

Sect. 2. *Carlingford Haven.*

On the whole coast of Leinster there is not one fair large Harbour, so as the next good Haven from Waterford Northwards is that of Carlingford; which two Harbours, in sayling straight along

along the coast, are above an hundred mils distant.

This Haven is some three or four miles long, and nigh of the same breath, being every where very deep, so as the biggest ships may come there to an anchor; and so environed with high land and mountaines on all sides, that the ships doe lie defended off all winds; so that this would bee one of the best havens of the world, if it were not for the difficultie and the danger of the entrance, the mouth being full of rocks, both blind ones and others, betwixt which the passages are very narrow: whereby it commeth that this Harbour is very little frequented by any great ships, the rather because there is no trafick at all, nor any good Town seated on this Haven. For the Town of Carlingford, whose name it beareth, is a very poor place, hardly worth the speaking of. About eight miles from the mouth of the Harbour is the Nurie, a fine little Town, untill in this late bloody rebellion it was for the greatest part destroyed by the Irish: by which Town passeth a little river, called the Nurie-water, which discharging it self into the Harbour some four or five miles below the Nurie, is not portable but of very little barkes and boats, and that onely when the Tide is in.

Sect. 3. *Strangford-haven, and that of Knockfergus.*

About thirtie miles Northwards from Carlingford-haven is the Haven of Strang-ford, the which in its entrance is almost as much encumbred with rocks of both kinds, as that of Carlingford. It is some five or six miles long, and beareth North-westward, being the mouth of

a great Lough, called Loch Cone; the which being but two or three miles broad in the moſt places, but ſome fifteen or ſixteen long, doth ebb & flow untill the utmoſt ends of it: ſo that there goeth a very ſtrong tide in this Harbour, which makes the ſame the unſafer, eſpecially in great ſtormes and high winds, for which there is no great defence here. On this Haven, and on the neighbouring Lough, there lyeth never a good Town, Strangford beeing more inconſiderable yet than Carlingford.

The next great Harbour upon this coaſt, and about twenty miles more to the North, is that of Knocfergus, being a great wide Bay, the which in its mouth, betwixt the Southern & the Northern point, is no leſs than ten or twelve miles broad, growing narrower by degrees, the farther it goeth into the land, the which it doth for the ſpace of fifteen miles, as far as to the Town of Belfaſt, where a little river called Lagon (not portable but of ſmall boates) falleth into this Harbour. In this Bay is a reaſonable good Road before the Town of Knockfergus (ſeated about nine miles within the land,) where it is good anchoring in three fathoms, and three and a halfe. On the North ſide of the Bay, ſomewhat neer the Sea, under a Caſtle called Mouſe-hill, is a ſand-bay, where it is good anchoring for all ſorts of ſhips, aſwell great as ſmall ones, for the North and North-weſt winds: but bad riding for the South-weſt.

Sect. 4.

Sect. 4. *Sheep haven, Lough Suillie, and Lough foile.*

The three fore-mentioned Havens of Carlingford, Strangford, Knockfergus, are all in the Province of Vlster, on the East-side thereof. The said Province hath also three good Havens on its Northern coast, not very far distant the one from the other, *viz.* Sheep haven, Lough Suillie, and Lough foile. Every one of these is a Lough (which the very name of the second and third sufficiently testifieth) opening it self into the sea: of the which Sheeps haven and Lough Suillie although they bee fair large Harbours, as well as Lough foile, and that Ships may ride there defended off all winds, Lough Suillie being also of sufficient bigness to contain a thousand great vessels, yet are they very little frequented, because there is not any trade nor trafick, nor any good town placed upon or neer them.

Lough foile is of a great bignes, at least twelve miles long, and in most places five or six miles broad, being almost every where of an equall breadth, except at the two ends, where it groweth narrow, being of an Ovall figure. For at the mouth, betwixt Magilions point and Greencastle, it is hardly a mile and a half broad: and at the other end it is much narrower yet, running from thence with a long arm some miles into the countrie, being liker to a broad River, than to a Lough. Vpon this Arm, three or four miles from the great Lough, is the town of London-derrie, in a place where that Arm turneth and windeth it self in that manner, as it environeth the town on three sides. It is nothing big, consisting only of two long streets, the which cut one nother

cross

croſs-wayes in the midſt; but it is very handſome, the ſtreets being broad and well paved, the houſes ſome ſtories high, & built for the moſt of freeſtone, with a handſome Church, Market place, and Key: and is incloſed with a thick and very ſtrong ſtone wall, being one of the principall fortreſſes of Ireland. It is but few yeares old, having been built up from the ground by a company of London Adventurers under the reign of King *James*. Before the mouth of this Lough lyeth a great ſand, called the Tounz (upon which it burneth greatly, when the wind bloweth from the ſea) but ſo as a fair broad and deep channell remaineth betwixt the ſaid Sand and the Weſt-ſide of the land, where there is at all times fourteen and fifteen fathoms of water, as in the mouth it ſelf ſome eight or ten. Entring into the Lough, there are very great Sands on the left hand, from the one end to the other, which are ſome miles broad from off the land; and of the right hand are ſome little ſands or ſhelves here, lying cloſe to the land. Betwixt theſe runneth a broad channell in moſt parts three and four fathoms deep: and in that Arm, whereon London-derry ſtandeth, it is deeper yet, in ſome places no leſs than ten or twelve, and before the Town four and five fathoms: ſo as this is one of the beſt and moſt commodious harbours of all the Land.

Sect. 5. *Kilbeg and Dungall Haven.*

The Country of Tirconnell, the which taketh up the whole Weſt-ſide of the Province of Ulſter, runneth a great way into the Sea with its Southern part, on the South ſide of which Foreland there are two very Fair Havens, the one not

not far from the other, viz. Kilbeg and Dungall-haven. Kilbeg is a fair round Bay, where the greatest ships that goe upon the seas, may at all times with their full lading enter and come to an anchor; being distant about twelve miles from Cape de Tellin, the outmost or most Western point of that forenamed Foreland of Tirconnell. The entrance is very narrow, so as unto them who are comming to it, there seemeth to be no opening there, untill they are very neer, but it is very clean, as well in the mouth, as in the Bay it self, and nothing that can hurt the ships either comming in or going forth, beeing entred, one may anchor where one will, in five, six, seven, eight fathomes, or more.

Three or four miles to the South from Kilbeg is a Cape, called St. Johns point, and six or seaven miles Eastward from the said Cape is Dungal-haven, wide and deep enough, but in the entrance greatly incumbred with shelves, sands, & rocks, so as great care & circumspection is requisit, to enter or goe forth safely. These two Havens have their names of villages seated on them, which are very small and no wayes considerable.

Sect. 6. *Broad-haven, Akill-haven, and Galloway-haven.*

The Province of Connaught, extending her self betwixt Ulster and Munster, taketh up the greatest part of the westside of Ireland, it hath also some good Ports, as namely Broad-haven: another to the North of Akill head; and a third, situated between the main, and the North and East side of Akill Iland, in which one may ride in seven and eight fathomes, and be defended of all

all winds, although it be rather a Sound, than an inclosed Harbour: for the ships which are come into it, need not to goe forth the same way again, but sailing on betwixt the Main and the Iland, may at the South end of the Ile come again to the open sea. These Havens are nothing famous, beeing very seldome resorted unto by any great ships, except such as by tempests and foul weather, or some other accident, are necessitated to shelter themselves in the same.

But the famousest Port of this Province is that of Galloway, beeing a very great Bay, some miles broad, and many more long, having in the mouth three Ilands, (named the Ile of Aran) the which lye North and South by the side one of the other, there remaining three chanels for to come out of the sea into this Bay. One chanel runneth betwixt the Land and the Northern Iland, called therefore North-sound: the second between the the same Northern Iland and the middlemost; which channel, beeing the most usuall of the three, is commonly stiled St Gregories sound: and the third between the Southernmost Iland and the main, named South sound: the channel betwixt the Southern and the middlemost Iland not beeing passable by reason of the sands and shelves, wherefore the name of False-sound hath been given to it.

The whole North-side of this Bay is very foul with sands and rocks, so as one may not approach the shoar in a great way: at the end of which sand, and in the innermost part of the Bay, lyeth a litle Iland, called in English Murton-Iland, and by the Irish Enis Kerrigh, which hath the same signification; at the East side whereof one may anchor

in five or six fathomes of water; but from thence Northwards untill the citty of Galloway, which is the space of two or three miles, none but litle vessels and barks can goe, the Citie standing not on the Bay itself, but on a broad water like a river, the which not farre above Galloway comming out of a great Lake, called Lough Corbes, dischargeth it self into the Bay a litle above Mutton Ile.

Sect. 7. *The Havens of Limmerick, Smerwick, Dingle-bay, Ventrie, and Dingle-Icoush.*

The next great Haven on the West side of Ireland, to the South of Galloway, is that of Limmerick, which Haven divideth the Province of Connaught from Munster, being of a huge length, no lesse than fifty miles: for so far it is from the mouth of the haven untill the Citty of Limmerick, to whose walls great vessels may goe up, without meeting with any thing els in all that way, save a many little Iles, but not any foul places, Rocks, or Sands. This Harbour is nothing els but a great Lough (halfe way its length growing somewhat narrow, but immediatly enlarging it self again into a great breadth) whereinto the River Shanon, (upon whose bank Limmerick is situated) dischargeth it self a litle way below the said City; although the English and the Irish both call it the Shanon all the way untill the Sea, as it were not a Lough into which the River falleth, but the River it self thus enlarged.

Comming out of this Harbour, the Land on the left hand shooteth a huge way Westwards into the Sea, on the side of which Fore-land, ten or twelve

twelve miles at this side of the uttermost point (betwixt which and the Iles of Blaskes passeth the Sound of the same name) is the Haven of Smerwick, not very great, deep, but clean, and well inclosed.

At the other side of this Fore-land, and to the North-east from the Blaskes, is a fair and very large Bay called Dingle-bay, the which goeth very many miles into the land, having in it divers good Havens, one whereof, called Ventry, is four or five miles from the Sound of Blaskes Eastwards; and three or four miles further is Dingle-Icoush, before the mouth of which Harbour, and at the West-side of it, lyeth a rock, called the Crow, round about the which one may sail without danger, it being alwayes above water, but at spring tides, at which time the Sea doth overflow it.

Sect. 8. *Maire, Bantrie, and Beer-haven.*

Against the South-east corner of Dingle-bay lyeth a great Iland, called Valentia, betwixt which and the Main is a very fair and safe Road. And a little way beyond that Iland goeth in another huge Bay, called Maire, which shooteth into the Land a great deal further than Dingle-bay: and somewhat further is a third Bay, called Bantrie, which equalleth Maire both in breadth and length; in both which, as well as in Dingle-bay, there be severall good Harbours and Roads.

Maire hath in the mouth some fifty or five-and-forty fathomes of water; entring in further, there be six and twenty, twenty, and eighteen; afterwards you come to ten, and to six, and in the innermost parts to three and two fathomes; being throughout very clean, and free

from all kind of Rocks and Sands, except in very few places.

As you enter into Bantrie, side-ward upon the left hand lyeth a reasonable big Ile, called the Hand of Beer-haven, betwixt which and the Main there goeth in a fair Sound, being a great musket shot broad; the which in its whole length, from where it beginneth untill the place where it endeth at the further part of the Iland, being the space of some miles, serveth for a very good and safe port, wherefore also it beareth the name of a Haven, being called Beer-haven. A good way within the mouth ly some Rocks in the midst of the chanel, the which at high water are overflown, & you may sail of either side of them: & at the other side of this Sound, where the same commeth out into the Bantrie, there ly two great Rocks just in the mouth, betwixt which the ships may pass; as also betwixt the same and the land of either side. All the rest of this Harbour or Sound is every where very clean and clear, and very good ancho.-ground, ten, twelve, and thirteen fathoms deep.

Sect. 9. *Whiddie-haven and Langerf.*

In the innermost of the Bantrie lyeth an Iland about three miles long, called Whiddie, betwixt which and the Main is a very fair wide Bay, (being the uttermost end of the great Bay Bantrie) where you may every where come to an anchor in three, four, five, or six fathomes, in as much or as litle water as you will, according as you have a mind to ride neer the shore or further from it, being every where clean ground. Ships may enter into this Bay or Sound in two severall places, at both ends of the Iland. But the entrance

at

at the South-end is very dangerous, because that there betwixt the Iland Whiddie and the Main land it is in most places foul and Rockie: But in the other entrance, at the Northern end of the Iland, is both room and depth enough, it being much broader than that at the South-end, and eight and nine fathomes deep; and there is nothing that can doe hurt, except only a row of Rocks a litle musket shot from the shoar, the which being covered at high water, doe not begin to appear but at half ebb.

Right against this Iland, at the other side of Bantrie, is a Haven called Langerf, in which is every where good anchoring and good ground; only at the one side, on the right hand close to the mouth, ly some foul grounds, the which fall dry at the ebb of a springtide.

From Beerhaven to the Northern corner of the Iland Whiddie the Bantrie tendeth East-North-East and North-East, eighteen or twenty miles in length. Over against Beerhaven, in the midst of the fair water, it is deep forty, six and thirty, and thirty fathoms; beyond the Iland fifteen and sixteen; but further in, approaching the Ile of Whiddie, it is again twenty and five and twenty fathoms deep.

Sect. 10. *Downams bay, Baltimore-bay and Baltimore-haven.*

Next to the Bantrie, and only by a narrow neck of land divided from it, is Downams bay, being great and wide (although no wayes comparable to any of those three already described) a very commodious Road to save ships in, and good anchor ground every where.

The land to the Eaſt of this Bay ſhooteth out very far to the Sea-ward; the uttermoſt point thereof, called Meſſan-head, being the Southermoſt Cape of all Ireland. For Cape de Clare, being about twenty miles further to the Eaſt, and ſomewhat more Southerly, is not on the Main, but in an Iland.

Beyond Meſſan-head is another Bay, far greater than any of thoſe three forenamed, but nothing like the ſame in ſhape, nor in the ſame manner running with a long arm a huge way into the land, but rather approaching to the figure of a half moon. In this Bay is Crook-haven, School-haven, and ſeverall other great Havens, not only on the main land, but alſo in ſome of the Ilands, whereof there is a great number in this Bay. The moſt Eaſterly of all theſe Ilands is Baltimore, the which ſurpaſſing all the others in bigneſs, giveth its name unto the Bay.

That part of the Bay which lyeth betwixt this Iland and the Main, having a narrow entrance, but within of a great largenes, is a marvellous good Road, where ſhips may come to an anchor on either ſide, & lye defended off all winds. It is five and ſix fathoms deep on the ſides, & ſix and 7. in the midſt. In the mouth of the Harbour, next to the Eaſt-ſide, lyeth a blind Rock; & in the midſt of it another Rock, which appeareth at low water. There is nothing els that can do hurt. This Haven, being far the principalleſt of all this Bay, hath its name, as wel as the Bay it ſelf of the Iland, being called Baltimore-haven. To the North of that Iland lieth another Iland, called Spain-Iland, where one may paſs betwixt theſe two Ilands to the Weſt, and ſo out of Baltimore-

haven

haven goe into the Sea. But onely with ſmaller veſſells, becauſe half flood there is not aboue 12, or thirteen feet of water in all that channell.

Sect. 11 *Caſtle-haven, Roſſe-haven, Clandore Haven with the Havens of Kinſale and Cork.*

Some miles beyond Baltimore-bay is Caſtle-haven, where ſhips may come to an anchor in twelve fathoms of water, being of a reaſonable bigneſs, and very clear and clean, as well in the entrance as within.

Between Caſtle-haven and Kinſale are two other good Havens, to wit that of Roſſe, and of Clandore, in which there is water enough, and very clean ground.

The Haven of Kinſale is one of the famouſeſt of all Ireland; ſhips may ſail into it, keeping in the midſt of the channell, without any danger either without or in the mouth of the Harbour, except a blind Rock cloſe to the Eaſt point. Within the haven, on the Weſt-ſide, lyeth a great ſhelf, wch ſhooteth a great way off from the land, but leaving a very large paſſage along by the ſide of it, in which, as in all the reſt of the Harbour, it is many fathomes deep. This Haven for ſome miles goeth in North-North-Eaſt, but afterwards turneth Weſt-ward untill the Kay of Kinſale, where ſhips may ride in eight or nine fathoms of water, being defended off all Winds.

Ten or twelve miles to the Eaſt of Kinſale is Cork-haven, the which goeth in North-North-Eaſt, being within large and wide, running a great way into the land: for the town of Cork, untill whoſe Kay this Haven is very clean and deep, is ſeated many miles from the Sea, and from the mouth of the Harbour.

CHAP. III.

Of the lesser Havens, and the barred Havens of Ireland, also of the Roads and Anchor-places upon the coast, and in the little Ilands near the coast.

Sect. 1. *Wexford-haven.*

AFter the description of the principal Havens of Ireland, we shall come to them of less moment, in which number we put all those, which either in their entrance, or within, have not water enough for the higher sort of vessels; as likewise those, the which being deep enough, are but very little, and of a small pourprise; and in this description we shall observe the same order as in the former, beginning with Wexford, and so going North-ward, then West, afterwards South-ward, and lastly East and North-East-ward, untill wee have gone about the whole Iland.

The Haven of Wexford runneth in West, and by North, and with her innermost part altogether Northward. Just before this Haven lye two great shelves of Sands by the side one of the other, of which that on the South-side is called Hanemans-path, and the other North-grounds. There goeth a chanel betwixt Hanemans-path and the land on the South-side of the Haven, and another betwixt the North-side and the North-grounds; but this last hath but six feet of water at full flood, and in the other eight feet with the flood of ordinary tides, and ten at spring-tides. The chief chanel is that which goeth in betwixt the two Sands, being four and five fathom deep. Besides these Sands there is another

ther Shelf in the mouth of the Harbour it self; which kind of sandy-banks lying across in the mouth of Harbours and Rivers, are usually called *Bars*; and the Havens which have them, *Barred-havens*. With a high flood there is about sixteen feet of water. Being past the Bar, you have for some way three fathoms of water, three and a half, and four; but afterwards for a great way but ten feet, and ten a half, with a high flood; although under the Castle where the Ships come to an Anchor, you have four fathoms, and before the Town three; but because of the forementioned shallows, no vessels can go to Wexford, that draw more than ten feet of water, but must unlade and lade in a Creek near the mouth of the Haven on the South-side, about three miles from the Town, where is water enough, but no shelter for the South-west winds, the which do come over the land to this place.

Sect. 2. *Dublin-haven.*

Dublin Haven hath a Bar in the mouth, upon which at high-flood and spring-tide there is fifteen and eighteen feet of water, but at the ebbe and neap-tide but six. With an ordinary tide you cannot go to the Key of Dublin with a Ship, that draws five feet of water, but with a spring-tide you may go up with Ships that draw seven and eight feet. Those that go deeper cannot go nearer Dublin than the Rings-end, a place three miles distant from the Bar, and one from Dublin. This Haven almost all over falleth dry with the ebbe, as well below Rings-end as above it, so as you may go dry-foot round about the Ships which lye at an Anchor there, except in two

places,

places, one at the North-side, half way betwixt Dublin and the Bar, and the other at the South-side not far from it. In these two little Creeks (whereof the one is called the Pool of Clantarf, and the other Poolebeg) it never falleth dry, but the Ships which ride at an Anchor remain ever afloat; because at low water you have nine or ten feet of water there. This Haven, besides its shallownes, hath yet another great incommodity, that the Ships have hardly any shelter there for any winds, not only such as come out of the sea, but also those which come off from the land, especially out of the South-west; so as with a great South-west storm the Ships run great hazard to be carried away from their Anchors, and driven into the sea; which more than once hath come to pass, and particularly in the beginning of November, *Anno* 1637, when in one night ten or twelve Barks had that misfortune befaln them, of the most part whereof never no news hath been heard since.

Sect. 3. *The Havens of Drogheda and Dundalk.*

The Haven of Drogheda, or, as the word is pronounced in common use, Tredagh, is very troublesom to be got into, as having not only a Bar lying across before its mouth, over the which vessels cannot pass but at high water, but also very narrow in the mouth: This Haven not being an Arm or Bay of the sea, but onely a River which keepeth her own bigness untill the end, without receiving any notable enlargement of the sea about her mouth, as other Rivers use to do. Upon this Bar is as much water as upon that of Dublin; and the Ships which can pass the

the Bar, may go up to the Key of Tredagh; which Town is seated about two miles from the mouth of this River, which is called the Boine.

Sixteen miles to the North of Tredagh standeth Dundalk, where a wide open Bay (made by the giving back and retiring of the coast) growing narrow, and receiving a little River, which above Dundalk is but a small Brook, maketh a kind of Haven, where never is much water, and with the ebbe may be passed over a foot; wherefore, and because there is not any shelter for the windes comming from the sea, nor any usuall Trafique, this Road is very little frequented.

Sect. 4. *The Havens of Dondrom, Arglas, Oldfleet, Belletree, and the Band.*

A few miles on this side of Strongford, are the Havens of Dondrom and Arglas, the one not far from the other, both little, and not very deep, but safe: And a little way beyond the Northern point of the Bay of Knockfergus, is Oldfleet-haven, a Harbour of the same sort as those two last mentioned.

Port Belletree, six or seven miles to the West of Fair-foreland (the North-Easterlieft point of Ireland) is as little as any of those three, less defended of the winds, and the ground sharp and foul.

Some miles further is the Haven of Colrain, called Band-haven, the which is nothing else but the mouth of the River Band, the which here falleth into the sea, keeping her own narrowness untill the end, in the same manner as we said above of the Haven of Tredagh. This River

passing

passing through Lough Neaugh, the greatest Lake of all Ireland (the which receiving several Rivers, hath no other out-let into the sea but the Band) carrieth a mighty deal of water, the which being inclosed in a narrow chanel, poureth it self into the sea with great violence: for which reason, and because of the narrowness of the mouth, this Haven is very hard to enter, having also but little depth, so as vessels which draw eight feet of water, must at least have three quarters of the flood before they can enter.

Sect. 5. *Tellin-haven, Macks wins-bay, the Havens of Balleshanon, Slego, Endrigo, Moy, and Niffadoy.*

Upon the West coast of Ulster, about half way between Cape Tellin and Kilbeg, is Tellin-haven, a round Bay, with good sand ground, which will contain about thirty Ships: West, and South-West winds blow directly into it, but off all other winds one is there defended.

Two or three miles Eastwards from Kilbeg is Mackswins Bay, where a Ship may ride safe without Cable and Anchor: but the entrance being every where beset with Rocks, it is dangerous to go into it.

Some miles to the South-West of Dungal-haven, is Balleshanon, being the mouth of that short River, by which Lough-Earn, one of the greatest Lakes of Ireland, dischargeth it self into the sea; which River runneth just on the borders of the two Provinces of Ulster and Connaught, dividing the same; this having a Bar before it, by reason whereof no bigger vessels than

than of thirty or forty tuns can enter into it.

Slego and Endrigo are two little Harbours, situated near the one to the other, in the North part of Connaught, very much encumbred with Rocks and Sands in the entrance, but otherwise reasonably deep; for a Ship of two hundred Tunnes may come and ride before the Town of Slego.

About half way between Slego and Broadhaven is Moy, being the innermost of a great Bay, divided from the rest by a little Iland somewhat long, the which lyeth cross in that manner, that onely one chanel remaineth, whereby to go out of the great Bay into the lesser, or the Haven, which chanel is twelve feet deep; but in the Haven it self, being nothing else but two little Creeks, divided asunder by some sands lying betwixt them, it is about fifteen or sixteen feet deep; but in the little channel which passeth into the inmost creek, being neareſt to the Village Moy, there is but nine feet of water at full flood with an ordinary tide.

Some miles to the South-East of Slime-head, (a famous Cape in Connaught, and situated about half way the length of that Province) is Port Niffadoy, a reasonable good Harbour, but very dangerous to get into, the sea there round about being full of Rocks both blind ones and others.

Sect. 6. *The Havens of Trailie, Yougball, and Dungarvan: item of Wickloe, Arickloe, Malabide, &c.*

At Trailie, half way between Smerwick and the mouth of the Haven of Limmerick, is a fair

fair Haven but none of the biggeſt.

About the middle way betweem Cork and Waterford is the Haven of Youghall, before the which lyeth a Bar, not to be paſſed but at high water.

Twelve miles Eaſtwards from Youghall, is Dungarvan, being a narrow Tide-haven, whoſe mouth is full of Rocks, many of which do not appear, and ſo more dangerous, and at low water it falleth dry, ſo as one muſt go into it at high flood, and paſs amidſt the Rocks.

As for the Havens of Arckloe (where with high water it is but ſix feet deep) of Wickloe (where at ful flood you have but ten feet of water) Malahide, a little to the North of the Bay of Dublin; Coldach-haven, and Red-haven, the firſt betwixt Loughſoile and Loughſuillie, and the other betwixt Loughſuillie and Sheeps-haven; Milk-haven, not far from Slego; Mablin-haven, betwixt Waterford and Wexford; and ſome others of the ſame nature: They are ſo little, that they will hardly ſerve for other than Fiſherboates, and therefore ſcarce merit the name of Havens.

Sect. 7. *Roads upon the Coaſt of Ireland, from Waterford to Fair-Foreland.*

Beſides this great number of Havens in Ireland, there are many good Roads, where ſhips at need may ſave themſelves, and commodiouſly come to an anchor, not only upon the coaſt of the Main land, but alſo in the moſt part of the litle Ilands, which ly round about Ireland.

To begin with thoſe on the Main. From the point of Waterford to Carnarord, being the ſpace

ſpace of about twenty miles, the coaſt is full of bayes, where one may come to an anchor. Under Carnarord ſhips anchor in ſix and nine fathomes. In St Margarets bay, three miles from Carnarord it is good anckoring in five and ſix fathomes, ſand ground. A litle further is the bay of Grenore, where you may anchor as neer the land as you will, in ſix, five, four, or three fathomes.

Some miles from Wexford to the point of Glaſearick, from which place to the bay of Dublin, being about fifty miles, the coaſt is full of inlets, where it is very good anchoring, in good ſand ground, eſpecially to the North of Arkloe-head (in a fair ſand bay every where in eight, ſeven, or five fathomes) and between Arkloe and Miſſen-head, being the ſpace of ſix or ſeaven miles.

In the mouth of the Bay of Dublin, at this ſide of the Bar, is good anchoring, as well on the South ſide, before the Village Dalkee (which place is known by the name of Berton Road) as on the North-ſide, round about that great Cape, named the Head of Houth.

Between Strangford-haven and the Bay of Knockfergus are divers good Anchoring-places; but all that Coaſt is very foul with Rocks, and blind Rocks. To the North of Knockfergus are divers inlets, where one may come to an Anchor; there are ſome Rocks, but they all ſtand above the water, ſo as eaſily they may be ſhunned.

Sect. 8. *The reſt of the Roads upon the coaſt of Ireland.*

To the Weſt of Fair-foreland the coaſt is flat and clean, ſo as there ſhips may Anchor every where

where in eight and nine fathoms. Under the point of Enistone on the West-side one may Anchor for Easterly winds, or to stop the tide.

Between Loughsuille and Sheeps-haven is an inlet where Ships may come to an Anchor; but the ground is somwhat foul.

On the West-side of Cape-horn Ships may ride at Anchor for Easterly winds: And along the whole coast between Cape-horn and the Ile of Aran is every where good Anchor-ground; as also upon the West coast between St. Johns-point and Dungal-haven, being the space of five or six miles.

In the Sound of Blaskees it is good Anchoring on the South-side of the point for Northern and Western, and on the North-side for the contrary windes.

On both sides of the Old-head of Kinsale, by the Dutch Mariners called Cape Velho, ships may Anchor as deep or shallow as they will.

There is also a good inlet for to Anchor in a few miles beyond the Haven of Cork; and on the East-side of Ardimore head is a Bay, where it is good riding for Westerly winds in seven or eight fathoms.

There is also a good Anchoring place or two betwixt Dungarvan and the Haven of Waterford.

Sect. 9. *Roads in the Ilands of Salters, Dalkee, Irelands-Eye, and Lambay.*

As for the Roads in the Ilands; about half way betwix Waterford haven and Garnarord lie two litle Ilands, a mile or two from the land, called Salters: the Southmost whereof, which lyeth furthest from the land, is much bigger

than

than the other: ships may passe between these two Ilands in five, six, and seven fathoms. On the East-side of the lesser Iland is a good Road to come to an anchor in seven or eight fathoms, where ships may ride in safety for South-West, West, and North-West winds: and on the North-West-side of the bigger Iland ships may anchor in seven, eight, or nine fathoms, the Road being defended off South-South-East, and East-South-East winds. Close by the South point of Dublin-bay lyeth a small Iland, called Dalkee, betwixt which and the Main land passeth a Sound seven, eight, and nine fathoms deep, in which you may anchor under the Iland. On the North-side of the head of Houth lyeth another small Iland, scarce half a mile in compas (wherein, as also in Dalkee, no body inhabiteth, both serving only for to feed cattell) having a decayed Chapell on the West-side, over against which ships may come to an anchor.

Three or four miles beyond Irelands Ey lyeth the Ile of Lambry, belonging to Sir William Vsher of Dublin, who hath there a fine litle Castle of free stone, and close by it a village, wherein dwell divers families, of Fishers and Husbandmen, who plow part of this Iland, and upon the the rest feed cattell and sheep. The whole Iland, being about three miles in compas, is high land, wherefore it may be seen a great way off. On the North-side of this Iland ships may anchor in twelve and thirteen fathoms for a Southerly wind. For a Sea-wind the ships must ride on the West-side, over against the Castle: but that Road is not very good, because alwayes in that Sound, being about three miles broad, goeth a great Sea.

Sect. 10. *Roads in the reſt of the little Ilands about Ireland.*

Right againſt the Promontory of Fair-Foreland lyeth the Iland Raghleens, where ſhips may ſail round about, as well at the out ſide, as betwixt it and the land, according as the wind and tide ſerve. On the South-Weſt ſide is a fair Bay with very fine Sand-ground, where ſhips may ride defended off all winds. A litle way on this ſide and to the Eaſt of Brandhaven lyeth Skires Portruſh, a Rockie Iland, the which on the South-ſide hath a fair Bay, very good Sand-ground, where ſhips may anchor in ſix or ſeven fathoms, being ſheltred of all winds, except the Eaſt-North-Eaſt wind, the which along the Coaſt doth directly blow upon it.

There is a good Road on the South-Eaſt-ſide of the Ile of Aran, ſituated on the North-Weſt-ſide of Ireland: and betwixt this Iland and the Main there lye three or four ſmall Iles, where ſhips may anchor in divers places, and be ſecured off all winds.

There is alſo a good Road for ſome winds under Eneskie Iland; the middlemoſt of the three Ilands ſituated betwixt Akill head and Slinehead, called Boche, where is good anchoring in four fathoms; under the Northern-moſt Iland of thoſe three lying in the mouth of the Bay of Galloway; under Enis Morrow, one of the Blaskees; under Dorſes Ile, lying betwixt the Bayes of Maire and Bantree, in the Sound which paſſeth betwixt the ſame Ile and the Main land.

Ten or twelve miles to the Eaſt of Corkhaven lyeth an Iland called Balle-cotton, where

ſhips

ships may anchor in five or six fathoms for Westerly and Southerly winds. There is also a good Road on the East-side of Capel-Iland, a little Ile, lying three or four miles from the mouth of the Haven of Youghall.

CHAP. IV.

Quality and fashion of the Irish Coast or Shoares. Item, a brief description of the principall Promontories or Heads of Ireland.

Sect. 1. *Of the low and Strandie Shoates of Ireland.*

THe Irish Coast is not every where alike; but of severall sorts: In some places the land along the Sea is low and flat, having a broad sandy strand, with a row of sandy hills, the which doth part the land from the strand, in the same manner as it is upon all the Coast of Holland and Flaunders (where these kind of hils are called Duynen or Downes) only with this difference, that they are not so large nor high, as in the Low-Countries, and that the rowes of them take up but a little space in breadth. This kind of Strand is in most parts of Fingall (being a portion of the Countie of Dublin Northwards towards Tredagh, and a good way beyond that, and els where. In other places ly no Downes or Sandy hills, nor any other heights, betwixt the strand and the land, it being only defended from the overflowing of the Sea by an insensible rising.

Sect. 2. *Of the high and hilly Shoares of Ireland.*

In other places the land is high and hilly on the sea-side; part whereof doth descend by degrees towards the sea, having a Strand below; but elsewhere the land is high and steep, being washed underneath by the deep sea, so as ships of a great burthen may sayl close by it; the which may be observed not onely in the Heads or Capes, the most part whereof are thus fashioned, but in many other places, & in great extents of the coast. For as concerning the saying of *Giraldus*, that Ireland every where upon the coast is very low, *Est per omnia sui latera marinâque littora terra valdè demissa*, that is evidently repugnant to the truth. Some of these high Shoars are bare naked Rocks, covered with very little or no earth, so as scarce any thing groweth upon them but dry grass and heath; others are stony within, but have at the top a reasonable deep mould, and all over cloathed with good grass; some of them being so exceeding steep towards the Sea-side, that it is impossible for man or beast, being come to the further end, to go one step further, without falling down and being lost. So as it hath happened, that cattle and sheep feeding in those places, when they were come to the top, and following the grass, suddenly tumbled down, falling head-long into the sea, or upon the hard sharp Rocks standing at the bottom.

Sect. 3. *Capes on the East-side of Ireland.*

The Heads or Capes of Ireland are in great number, and many of them very observable, to the great commodity of the Sea-faring men. In the

the South-Easterliest point of Ireland is the Cape of Greenore, five or six miles to the South of the Bay of Wexford, being not very high, but steep, and flat at the top: and three or four miles to the South-West from it is the point of Carnarord.

Betwixt Wexford and Dublin there bee five Heads: That of Glascarick, which the Dutch Mariners call the Blew-point, and the Steep-point, twelve miles to the North of the Bay of Wexford, being of no great height. That of Glaskermen or Arklo being well-neer at the same distance from the Head of Glascarick, as that is from the Bar of Wexford. Missan head, some nine or ten miles further to the North. The Head of Wickloe, six miles beyond Missan-head, being steep and rocky, divided at the top into two little Hillocks. And the fifth and last of all, that of Bray, about fifteen miles beyond Wicklow, and five or six miles to the South of the Bay of Dublin, being a great and high Cape, shooting a good way into the Sea, and so steep, that it is ten fathomes deep there close under the land.

On the North-side of Dublin-bay is the Head of Houth, a great high Mountain, three or four miles compass in the bottom, having the sea on all sides, except the West-side, where with a long narrow neck it is joyned to the land; which neck being low ground, one may from either side see the sea over it, so that afar off it seemeth as if it were an Iland. This Head may be seen a great way off at sea; for even upon the land one may very perfectly see it, not only upon the Key of Dublin, which is six miles

from thence, but nine or ten miles further Westward.

Upon all the coast from the Head of Houth to Dondrom, being the space of about threescore miles, is none considerable. But some miles beyond Dondrom, and three or four miles at this side the Haven of Arglas, is St. Johns-point, a Head and Fore-land which shooteth a good way into the Sea.

The next Head beyond St. Johns, is the point at the North-side of the Haven of Strangford, which the Dutch Mariners by a notable mistake call the point of Arglas.

All these Capes lye on the East-side of Ireland, whose utmost point Northward is the Promontory of Fair-foreland.

Sect. 4. *Capes on the North-side of Ireland.*

About fifty miles to the West of Fair-foreland, and well near the middle of the North-coast, is the Head of Enyston, which with the land next adjoyning lyeth much more Northward, and runneth further out into the sea than any other land upon this coast, being of a great height, so as it may easily bee known by any that once have seen it.

Some forty miles more Westward beyond this Promontory lyeth the Cape which is known by the name of Horn-head, being a Hill with two hommocks at the top, in fashion somewhat like unto two horns, from whence it hath received its denomination.

Sect. 5. *Capes on the West-side of Ireland.*

Upon the West-side of the Irish coast are four principal Heads, *viz.* Tellin-head, lying about thirty miles to the South-West of the Iles of Aran, the which are situated over against the North-Westerlyest point of Ireland. Akil-head, some miles to the South of Broad-haven, being not on the Main, but in an Iland. Sline-head, wch by the Sea-faring men is called Twelve-pence, because the land sheweth it self in twelve round hommocks, being situated well near in the middle of the West-coast: And Lupis-head, which is the Northern-point of the Haven of Limmerick.

As for the other Heads upon the same West-side, namely those three betwixt the Haven of Slego and Broad-haven, by the Irish Pilots called Can-Moin, Can-Killaloy, and Can-Jores, (Can in Irish betokeneth a Head in all sorts of significations) Renillra and Clegan, betwen Akil-head, and Sline-head (which last the Irish call Can-Leme) Brain and Calew, situated to the South of the Bay of Galloway; and Can-Sanan, being the South-point of the Bay of Limmerick; those are less considerable.

Sect. 6. *Heads on the Southern Coasts of Ireland.*

Upon the South-West-side of Ireland, the principall Heads are Cape-Dorses (situated in an Iland of the same name, betwixt the two great Bays of Maire and Bantree) and Messan-head, situated betwixt the Bayes of Bantree and Baltimore; being the same, in *Camdens* opinion, which *Ptolomie* calleth *Notium*, that is Southern,

thern, it being the moſt Southerly point of all Ireland.

Upon the South-Eaſt-ſide is the Head of Clare, ſtanding in an Iland on the Eaſt-ſide of the Bay of Baltimore; and a great way from thence, the old Head of Kinſale, called Cape Velho by the Dutch Mariners; which Head, to thoſe that come ſayling along the land afar off, ſeemeth to be an Iland, being a point which ſhooteth a great way into the ſea, whoſe utmoſt, or moſt Southerly end is very high and ſteep.

Upon the ſame ſide ſtandeth the Head of Ardimore, which runneth a great way into the ſea from the land on both ſides, and becauſe of its height may be ſeen many miles off.

CHAP. V.

Of the Sands or Grounds, Blind-Rocks, and other Rocks in the Iriſh ſea.

Sect. 1. *Of the Grounds before the Coaſt betwixt Dublin and Wexford.*

THe Sea which invironeth Ireland, is as free from Shelves, Sands, or Grounds, as any in all the world, not alone upon the other ſides, where the ſame is wide and open, far diſtant from all other lands, but upon the Eaſt-ſide, where the ſame is incloſed betwixt Ireland and Great-Britain, in which whole ſpace it hath not any other Sands than thoſe ſituated along the coaſt between Dublin and Wexford. Theſe indeed are of a huge extent, but not turning and winding

winding as moſt part of the Grounds in other places, but in a ſtreight line, North-North-Eaſt, & South-South-Weſt, being fartheſt from the land with their North-end; and as they go Southward, ſo they do come nearer to the land; and near the Tuskar, a Rock right againſt the point of Greenore, in which place they end, they are not much more than two miles diſtant from the land; whereas the diſtance betwixt the North-end, near the Iland Dalkee (which Iland, as before we have ſhewed, lyeth at the entrance of Dublin-bay, about threeſcore miles from the Tuskar) is above eight miles. They are all of a Stoney-ground, in ſome places but one fathom deep, and a fathom and a half; but in the North-end two fathoms and a half, and three fathoms.

Betwixt theſe Grounds and the land lye two or three little Sands, beſides thoſe which lye in, and before the mouth of the Bay of Wexford: one betwixt the South-end and Greenore; another to the South of the Head of Glaſcarick, a good mile from the land, called Ruſh and Ram; and a third one mile to the South of Arcklo-head, called Glaskermen, ſomewhat more than half a mile from the land, and about two miles long.

Sect. 2. *Of the Chanel betwixt the Land and the forenamed Grounds.*

The Chanel betwixt the great Grounds and the land is very deep all over, ſo that the biggeſt veſſels may paſs through it from Dublin to Wexford, and from Wexford to Dublin, taking care only that they doe not come too neer the Grounds,

Grounds, the which being very steep on the inside (as they are also without, or on the East-side, where ships may not come neerer to them than in 24. and 25. fathoms, because that in twenty fathomes one is close by them) it is requisite not to goe further off from the land, than in seven or eight fathoms, in which depth ships may within a cabels length sail all along the coast, the which here every where is very clean, and free from all danger. And even between the land and the forenamed small Grounds, Glaskermen and Ruth and Ram, the Sea is very clean and deep, so as most ships doe passe betwixt them and the land, and not about by the out side of them.

These Sands in four severall places are cut thorough with fair broad and deep chanells, whereof the one is over against the Bay of Wexford; the other against Glascarick, beeing no less than fifteen or sixteen fathoms deep; the third right against Arckloe, in which chanel it is about seven or eight fathoms deep; and the fourth is directly against Wickloe.

Sect. 3. *Blind Rocks upon the coast of Ireland from the Saltees unto Wickloe.*

There are some blind Rock in this Sea, but lye for the most part close under the land, or neer some of the litle Ilands or high Rocks, so as they may easily be shunned, the rather, because most of them doe at low water appear either in part or altogether. To speak a litle of these in order: the Saltees, two litle Ilands situated half way between the Haven of Waterford and and the head of Carnarord of the which hath been

been spoken heretofore) have both at the North-side some blind Rocks; whereof those which ly neer the bigger and Southermost Iland, full dry at low water. About three miles to the South of the same bigger Iland lyeth a blind Rock called Kinmore, of the bignes of a ship, at half ebbe it cometh above water, and is so steep, that with the side of a ship one may ly close against it, and have fourteen fathomes of water, so as without any danger one may sail very close by it. To the South-East of the fore named bigger Iland doe also lye some blind Rocks, called the Frailes, the which may be seen at low water, and ships may passe through the midst of them. About half a mile from Blackrock (a noted Rock, whereof shall be spoken anon) lyeth a blind Rock, called the Barrell, of the which one must take heed very carefully. A little to the West of Carnarord lyeth a small Rocky foul, close under the land. Betwixt Carnarord and St Margarets Bay it is foul and Rocky, but the foul grounds doe not reach far into the Sea.

South-South-East from St Margarets Bay lyeth a blind Rock, called Caliogh, the which at low water falleth dry. From the point of Greenore a riffe of blind Rocks and Stones runneth almost the length of a mile into the Sea, the which at low water falleth dry a good way from the land. At the North-side of the Head of Arcklo lyeth a litle Stony row, the which is shunned very carefully by the ships, not daring to come neerer to it than in five fathoms of water.

Sect

Sect. 4. *The rest of the blind Rocks upon the coast of Ireland.*

Iust to the South of the head of Wickloe, a little way from the land, lyeth a Rocky sand called Horse-shoe; betwixt which and the land ships may sail thorough, if need be: but that being full of danger, it is done very seldome; and a little further to the South lyeth a little blind Rock close by the land, called the Wolfe, the which at half ebb cometh above water; betwixt which and the land fishers boats doe passe.

The like blind Rocks & Rockie sands lye upon the coast betwixt Tredagh and Dundalk, as also betwixt Dundalk and Carlingford, in both places close under the land: at both the points of the Havens of Carlingford & Strangford under St Iohns point, situated half way between those two Havens: on both sides of those two great Rocks, a litle way beyond Strangford Haven, called Southrock and Northrock: between the Ilands of Copland Iles and the land, at the South-point of the bay of Knockfergus: round about those great Rocks over against Oldfleet, called the nine maids: to the West of the little Iland called Sheeps-Iland: betwixt Port Belletree and Skires Portrush, which Rocks are called the Chickens: half-way betwixt Lough-Suillie and Sheeps-Haven, a mile or two from the land, which Rocks the flood doth cover, but at ebbe they come above water; & in severall other places upon the West-coast & the South-coast the which it would be tedious all to particularise: wherfore we will conclude this rehearsall of the Blind Rocks with that which to the West of St Iohns point (a point situated three or four mile South-

ward

wards from Kilbeg-haven, doth lye somwhat more than a mile off from the land, upon which the Sea breaketh with great noise, and nevertheless one may freely and without any danger sail between the same and the land.

Sect. 5. *Rocks in the Irish Sea, upon the East-side and the North-side of the coast.*

There be also divers Rocks that alwayes stand above water, the which as they are dangerous in the dark night, and in misty weather, so at other times they are rather profitable than hurtful, forasmuch as they serve the Sea-faring men for Sea-marks, and help them to discern the situation and distances of the coasts; wherefore also the most part of them have received peculiar and proper names. The principall of this whole number is the Tuskar, a great black smooth Rock, of fashion like unto a ship turned the upside downwards, but as big again, lying South-Eastwards from the point of Greenore the space of three miles. To the South West of the Tuskar a great way, and about a mile and a half from the bigger of the Saltees, is the Rock Kinbeg. To the North-East of the Saltees stand two Rocks not far the one from the other, of wch the one of its situation is called North-Rock, & the Southermost The Tuns. To the East of these two, and about three miles from the point of Carnarord, lyeth Black-Rock, being clean of all sides, so as ships may freely sail round about it without any fear or danger.

A mile or two to the North of Lambry lyeth a great Rock called Rock Abill, about which ships may sail of all sides.

Two

Two miles beyond the North-point of the Haven of Strangford are two great Rocks, the one called North-Rock, and the other, distant two miles from it to the South, South-Rock: The North-Rock is a number of Rocks lying close together, divers whereof are covered at high-water. From the end of these two shoot out riffes of foul and rocky-ground; but betwixt them goeth a broad, clean, and deep chanel, through which all manner of ships, even the biggest, may pass.

Six or seven miles to the North of the Bay of Knockfergus, and three miles from the land, are the Nine Mayds, being great Rocks that lye but a little above the water, or low Rocky-Iles, with a great number of blind Rocks about the same, so as ships may come no nearer to them than within five or six mile.

Of the same kind of low Rocks, or little Rocky-Ilands, are also those who are called Eustershull-Ilands, being situated before the most Northerly-point of Ireland, betwixt Lough-Foile and Lough-Suillie.

Sect. 6. *Rocks in the Irish-sea upon the Western and the Southern-coast.*

Near the Ilands of Aran upon the North-West-coast of Ireland, lye severall high Rocks, called the Stags of Aran; and such other Rocks, called the Stags of Broad-haven, lye three or four miles from the Northern-point of Broad-haven.

Three miles to the North-west of Akill-head lyeth Black-rock, a great high and black

Rock,

Rock, with ſeverall other Rocks near unto it.

On the North-ſide and Weſt-ſide of the Ilands Blaskes, lying over againſt the moſt Weſterly-point of Ireland, are ſeverall great Rocks, ſome whereof are called the Horſes, and others the Bucks.

Seven or eight Leagues to the South of Blaskes lye three great Rocks, called the Skelligs, the Eaſterlieſt about three miles, and the Weſterlieſt ſix or ſeven miles from the Land; the which, to thoſe that come from the South, when firſt they begin to ſee them, reſemble the Sails of Ships.

Without the Head of Dorſes lye three other great Rocks, whereof the uttermoſt, or the moſt Weſterly, is called the Bull, the middlemoſt the Cow, and the third the Calf, being clean round about, ſo as without any danger one may ſail between them.

Five or ſix miles Weſt and by South of the Head of Clare lyeth a high ſteep Rock alone in the ſea, called Faſtney, the which at the firſt appearing looketh like the ſayl of a ſhip.

Two or three miles to the Eaſt of Baltimore, and a mile or two from the land, lye five or ſix high ſteep Rocks called the Stags, as thoſe of Aran and Broad-haven, to thoſe that come from the Eaſt along the land, when firſt they begin to have them in ſight, they reſemble ſome Spires or Pointed-ſteeples ſtanding together.

Two miles Eaſtwards from the mouth of the Haven of Kinſale, lye two great black Rocks,

Rocks, the one somwhat farther from the land than the other.

There lie also severall Rocks neer the little Ilands of Dalkey and Irelands-Eye, the one situated before the North-point, and the other before the South-point of the Bay of Dublin, as heretofore we have shewed. Likewise on both ends of the Ile of Lambey, half way betwixt the same Iland and Tredagh-haven, close by the Land; near the Iland Raughlins, near Skires Portrush, and in severall other places, but the principal and most considerable are those whereof we have spoken.

CHAP. VI.

Of the nature of the Irish-sea, and of the Tides which go in the same.

Sect. 1. *The Irish-sea not so tempestuous as it is bruited to be.*

THat part of the Irish-sea which divideth Ireland from Great-Britain, is very much defamed both by Antient and Modern Writers, in regard of its boysterousnes and tempestuousnes, as if it were more subject to storms and raging weather than any other, and consequently not to be passed without very great danger: *Mare quod Hiberniam & Britanniam interluit, undosum inquietumque, toto in anno non nisi paucis diebus est navigabile:* That is, *The Sea which passeth betwixt Ireland and Britain, is boysterous and restless, so as but few dayes*

dayes in the yeare ships can go upon it; saith *Solinus*: With whom *Giraldus* (who several times went to and fro betwixt England and Ireland) fully agreeth, writing in this manner, *Hibernicum Mare concurrentibus fluctibus undosissimum, fere semper est inquietum, sic ut vix etiam æstivo tempore paucis diebus se navigantibus tranquillum præbeat*: That is, *The Irish-sea being very boysterous through the concourse of the waves, is almost alwayes restlesse, so as even in the summer-time it is hardly for a few dayes quiet enough to be sayled upon* Likewise also *Camden* and *Speed* give unto this sea the surnames of Boysterous and Tempestuous. Yea it is a common Proverb in England, *As unquiet as the Irish-sea*. Nevertheless it is nothing so bad as they make it; and the words of *Stanyhurst*, in his Annotations upon *Giraldus*, *Mare Hibernicum satis tranquillum est, nisi ventorum vi agitetur, & non solum æstate, sed etiam summa hyeme vectores ultro citroque navigant*: *The Irish-sea is quiet enough, except when by high windes it is stirred, so as not only in the summer, but even in the midst of winter people do pass it to & fro*, are altogether true, & confirmed by dayly experience. True it is that some ships do perish upon this, but the same happeneth as well upon other seas, who are all subject to the disaster of tempests and shipwracks.

Sect. 2. *Causes of the loss of such ships as perish upon this sea.*

The common cause of the casting away of ships upon this sea, and upon the East-coast of Ireland, is this, that in the long dark Winter-

nights (when this disaster is more frequent than at other times of the year) some furious storm arising, the ships are dashed against the Rocks, against the rocky Shoares, or against those Grounds which extend themselves betwixt the Tuskar and the Bay of Dublin, whilst the Steer-men and Pilots by reason of the darkness not being able to discern the land, or any of their wonted marks, do not know which way to steer to shun those dangerous places, and to keep themselves in the open sea.

Sect. 3. *Nature of the ground of the Irish-sea.*

The ground of the Irish-sea, as well in the midst, as under the land, is almost every where clear sand; but in some places black and muddy or oasie-earth: In very few places rough and sharp; and scarce any where else but in the Bay of Wickloe, so hard and stifly compacted, that the Anchors can take no hold of it.

Sect. 4. *Of the Tides in the Irish-sea.*

What concerneth the Ebbing and Flowing in this sea, which invironeth Ireland: upon all the West-side it floweth against the land, and the Ebbe falleth back from it into the sea; the Flood from, and the Ebbe towards the West; for which reason very great Tides, as well of Ebbe as Flood go upon all this coast, not onely the open shoares, but in the bayes and inlets (even those which go a great way into the land, as the Haven of Limmerick) so as those, who have been at Galloway, do assure us, that it doth so mightily ebbe and

flow there, that at high-water great vessels may sayl over those Rocks, the which with the Ebbe come above water.

Upon the other side of Ireland it ebbeth and floweth along the land; for upon the North-side of Ireland the Ebbe and Flood falleth in the same manner as upon the West-side, flowing from, and ebbing towards the West. But upon the East-side, from Fair-Foreland unto Carling-ford, the Flood commeth from, and the Ebbe falleth to the North: As upon the rest of this East-side, to wit from Carlingford to Carna-rord, it floweth from the South, and ebbeth from the North. For although upon all this side the Flood runneth along the land, yet doth it not take its beginning from one and the same, but two contrary points; the which two floods comming the one out of the Main-sea in the North, and the other out of the Main-sea in the South, do meet and stop one another before the Haven of Carlingford.

From Tuskar and Carnarord as far as to the Head of Clare, being the whole South-East-coast of Munster, the Flood falleth along the coast East-North-East, and the Ebbe, West-South-West. But upon the rest of the coast of Mun-ster, beyond the Head of Clare Westward, which coast lyeth West and by South, the Flood falleth East-ward, and the Ebbe to the West.

Sect. 5. *Strong Tides in the Sounds. Strange proprietie of the Bay of Wexford in the matter of Tides.*

That which the Sea-faring men do witness, that in the Sound of Blaskes, of Dalkee, and in

that of Lambey, as alſo in ſome other narrow chanels of this ſea, there goeth a very ſtrong Tide, as well of the Ebbe as Flood, is no other than may be obſerved almoſt every where elſe in places of the like nature.

But it is much to be wondered, what the ſame do relate of the chanel, or entrance of the Haven of Wexford, to wit, that it ebbeth and floweth there three houres ſooner than without in the open ſea; ſo as when it is high water in the chanel of that Haven, and upon the bar of the ſame, the Flood doth ſtill for half a Tide, or three houres after, ſtrongly run by it to the North; whereby it cometh to paſs that the end of Hanemans-path (a great Sand lying juſt before the Haven of VVexford) is caſt up more and more to the North; and that the chanel which paſſeth by the North-ſide of that Sand, being the entrance of the Haven, is now more to the North than it hath been formerly. And as it floweth three houres longer in the open ſea than upon the Bar and in the chanel of this Haven, in the like manner alſo, the Ebbe in the ſea falleth to the South three houres after that it is low water in the ſame place, but not ſo ſtrongly as the Flood.

Sect. 6. *Some other ſtrange particulars about the Tides in the Iriſh-ſea, related by* Giraldus, *but found not to be true.*

More ſtrange it is what *Giraldus* writeth of the Havens of Wickloe and Arckloe, to wit, that in VVickloe-haven it ever floweth, when in the ſea it ebbeth; and that it ebbeth there when it floweth in the ſea. And that in the ſame River (this

Haven being nothing elſe but the mouth of a little River) the water is ſalt as well when the ebbe is at the loweſt, as at the flowing and high-water: And that to the contrary in that Riveler, which at Arcklo diſchargeth it ſelf into the ſea, the water keepeth its ſweetneſs at all times (never receiving the mixture of any ſaltneſs) as well with the flood and high-water, as with the ebbe. But experience ſheweth theſe things to be repugnant to the truth; as alſo what he writeth of a Rock not far from Arcklo, at the one ſide whereof he ſaith that it alwayes ebbeth, when it doth flow on the other; and to the contrary. Alſo that in Milford-haven (ſituated in the Southernmoſt part of Wales, in a manner over againſt Waterford) and upon the next coaſts, it ebbeth and floweth at quite contrary times to what it doth at Dublin, and the coaſt thereabouts; ſo that it ſhould begin to ebbe in Milford-haven, when in the Bay of Dublin it beginneth to flow, and to flow in Milford-haven when it beginneth to ebbe at Dublin: Which how untrue it is, all thoſe can witnes, who having bin in both places, have had the curioſity to obſerve the times and houres, at what age of the Moon ſoever, wherein it doth begin to ebbe and to flow there.

CHAP. VII.

Of the Springs and Fountains, item of the Brooks and Rivelets of Ireland.

Sect. 1. *Of the Springs and Fountains.*

HAving sufficiently spoke of the Sea wherin Ireland lyeth, and of whatsoever belongeth thereunto; we shall now, before we come to treat of the Land it self, speak of the Waters within the Land; first of the Springs and Brooks, afterwards of the Rivers, and lastly of the Loughs or Lakes.

As for the first, to wit Fountains and Springs, Ireland is very full of them every where, not only in the mountainous and hilly parts, but even in the flat and Champain countries: Which Springs for the most part are all of one and the same fashion, being like unto a small pit full of water up to the brim; at the lower side whereof the water doth run forth, without making any noise or bubling. For that kind of Fountains which forcibly burst out of the side of a Rock, or spout their water on high, are very rarely to be found in this Kingdom. The water of these Well-springs is for the most part cool, clear, and pure; free from all strange smell and taste: in which properties nevertheless, and in the wholsomness of the water, the same differences are found, and for the same causes, as in other countries. For those which spring out of a gravelly or sandy ground are purer than those that spring out of earth or clay; those that rise out of a stony or

Rocky

Rocky ground, cooler than any of the former; those that are exposed to the Sun, and freely receive the Beams thereof, especially of the morning-sun, have lighter and wholsomer water, although less cool than those which are contrarily seated; and so for the rest.

Sect. 2. *Spaes and Holy-wels in Ireland.*

A few yeares since some Fountains have been discovered in Ireland; some of them not far from Dublin, and others in other parts, whose veines running through certain Minerals, and washing off the vertue of the same, yeeld a Medicinall water, apt to open the obstructions of mans body, and to cure other accidents thereof; which kind of Fountains are commonly called Spaes, a name borrowed of a certain village in the country of Liege, in which there is a Spring of that sort, absolutely the principallest, and the most effectuall of all those of the same kind, and therefore of very great renown in near and in far countries. Besides these Spaes there are also a great number of other Fountains throughout all the Land, called Holy-wels by the inhabitants, whose water not differing from that of other Wels, in smell, tast, or in any other sensible quality, nevertheless is beleeved to be effectuall for the curing of severall diseases. But experience doth shew, that those vertues are not found in the Springs themselves, but onely in the vain imagination of the superstitious people; the which also having dedicated every one of those to some particular Saint, do expect the supposed vertue rather from the power of them, than from any naturall efficaciousnes inherent in the water it self.

Sect. 3. *Of the fabulous Fountains of* Giraldus Cambrensis.

As for those wonderfull Springs mentioned by *Giraldus Cambrensis*, One in Munster, whose water presently maketh them gray that wash their head or beard therewith; One in Ulster, of quite contrary vertue, so that the persons washed therewith never come to be gray; One in Connaught, whose water good and commodious for the drinking, and other uses of men, is hurtfull, yea deadly to cattle, sheep, horses, and all other sorts of beasts; And yet another in the same Province, the which being on the top of a high hill, far from the sea side, ebbeth and floweth twice a day, in the same manner as the sea, I could not hitherto come to the speech of any, who in our times had seen those Fountains, or observed any such thing in them: Which maketh mee doubt, that that good man hath been deceived herein by his credulity, as in innumerable other things, the which being evidently untrue and fictitious, are by him related for certain truths. As in this matter who seeth not the idleness of that fiction concerning a certain Fountain in Munster, whereof he writeth, that as soon as any body doth touch it, or but look at it, it beginneth presently to rain most heavily over all the Province, and continueth so to do, untill a certain Priest, appointed for that purpose, and who hath never lost his Maiden-head, do appease the Fountain, in singing a Mass in a Chappel standing not far from thence, and built expresly for that end; and in besprinkling the same Fountain with Holy-water, and with the Milk of a Cow of one colour.

Sect.

Sect. 4. *Of the Brooks in Ireland*

No country in the world is fuller of Brooks, than Ireland, where the ſame be numberleſs & water all the parts of the land on all ſides. They take their beginning three ſeverall manner of waies. Some have their ſource of Fountains, the wch for the moſt part are very ſmall, not only thoſe who carry the water but of one ſpring (moſt of wch are rather like unto a gutter, than a brook) but even thoſe into which the water of ſeverall fountains doth flow together. Others riſe out of Bogs, the which beſides their own univerſall wetneſs being full of ſprings, and by reaſon thereof gathering in them more water than they are able to drink in or contain, doe neceſſarily ſend out the ſame in convenient places, and ſo give a beginning unto Rivelets and Brooks. The third ſort take their beginning out of certain ſmall Loughs, which brooks ordinarily are of a reaſonable bignes, and farre ſurpaſſe the other two ſorts; although there doe not want ſome, even of this kind, which are very little. And there is very few of any of theſe kinds, who come to any notable bignes, as long as they continue to be ſolitary, and untill having received the water of ſeverall other Brooks, doe thereby grow more conſiderable than they were in their firſt originall.

Theſe Brooks, beſids the great good they do the land in watering the ſame, & beſides the commodity they afford of drenching the Cattle & other Beaſts; do alſo greatly ſerve the inhabitants for another good uſe, to wit the grinding of their corn, whereunto the Windmils are very little uſed in Ireland, becauſe they have the conveniency,

through

through the great number of Brooks, to erect watermills in every quarter where it is necessary: which bring a great profit to the owners, being kept and maintained with less cost and labour.

Sect. 5. *Of the swelling and overflowing of the Brooks.*

Some of the Brooks doe flow in an equall bigness all the year long, without receiving any notable increase or diminishing: but far the major part doe change according to the wet or dry seasons of the year, and as many of them as come out of the mountaines, or run thorough hilly countries, swell so excessively, when any great rain doth fall, that they not only overflow the next low grounds, doing many times great damage in them, but also bring the wafering men into great distresse; for it cometh to passe very oft, that a brook, which ordinarily is very shallow and still, riseth so mightily through the multitude of the rain water, which from the next mountains and hills descendeth into it, that a good horse cannot passe without swimming, where at other times a child easily may wade over: and with that adundance of water is commonly joined so strong and impetuous a current, that man and horse are often caried away with it, to their extreme danger; and what soever wee say here-in of the Brooks, is much more to bee understood of the Rivers, the which otherwise in convenient places or foards may be passed over; wherein the aforesaid danger is greater yet: so that few yeares passe in Ireland, in the which some persons are not drowned in that fashion.

Sect.

Sect. 6. *Strange invention of a man to passe a Brook, greatly risen by the abundance of rain.*

It shall not be improper to insert here a particular observed by a very credible and reverend person, *Theophilus Buckmort*, Bishop of Dremore, the which he hath severall times related to my Brother and others, being this; The Lagon, a little River or Brook which passeth by the Town of Dremore, upon a certain time being greatly risen through a great and lasting rain, and having carryed away the woodden-bridge, whereby the same used to be passed at that Town; a country fellow who was travelling that way, having stayed three dayes in hope that the water would fall, and seeing that the rain continued, grew impatient of staying longer, and resolved to pass the Brook whatever the danger was; but to doe it with the less perill, and the more steadiness, he took a great heavy stone upon his shoulders, whose weight giving him some firmness against the violence of the water, he passed the same without harm, and came safe to the other side, to the wonderment of many people, who had been looking on, and given him all for a lost person.

Sect. 7. *Of the Brooks of Dromconran and Rafernam by Dublin.*

Of these dangerous Brooks there are two hard by Dublin, both running into the Haven somewhat more than a mile from the Citie, the one at the North-side thereof, a little below the Village Dromconran, which is seated upon the High way from Dublin to Drogheda; and the other

ther at the South-side, close by the Rings-end. This called Rafernam-water of the village by which it passeth two miles from the sea, and the same distance from Dublin, is far the worst of the two, as taking its beginning out of those great Mountains South-wards from Dublin, from whence after any great rain such abundance of water is descending to it, that the same, which at other times is of very little depth, groweth thereby so deep, and exceeding violent, that many persons have lost their lives therein; amongst others Mr. *John Usher*, Father to Sir *William Usher* that now is, who was carryed by the current, no body being able to succour him, although many persons, and of his neareſt friends, both afoot and horsback were by on both the sides. Since that time a stone bridge hath been built over that brook (as over Dromconran-water there hath been one from antient times) upon the way betwixt Dublin and Rings-end; which was hardly well accomplished, when the Brook in one of those furious risings quite altered its chanel for a good way, so as it did not pass under the Bridge as before, but just before the foot of it, letting the same stand upon the dry land, and consequently making it altogether useless: in which perverse course it continued, untill perforce it was constrained to return to its old chanel, and to keep within the same. To go from Dublin to Rafernam, one passeth this River upon a woodden-bridge; the which although it be high and strong, nevertheless hath severall times been quite broke, and carryed away through the violence of sudden floods; although at other times, and when that

Brook

Brook doth onely carry its ordinary water, a child of five yeares may easily and without danger wade through it; and a tall man on horseback riding underneath it, not being able to reach it; in the great floods the water many times riseth so high, as that it doth not onely touch, but floweth quite over the bridge.

CHAP. VIII.

Of the Rivers of Ireland.

Sect. 1. *Of the Shanon.*

BEsides the excessive number of Brooks wherwith Ireland is watered, it hath a good many Rivers, the which being broader and deeper than the Brooks, are consequently navigable; although the major part are not portable of any great ships nor barks, but only of small vessels and boats.

The principallest of all is the Shanon, who taking his originall out of Lough-Allen, and in his course dividing the Province of Connaught from Leinster, and afterwards also from Munster, passeth through two other great Loughs, to wit Lough-Ree, whereout she cometh just above Atlone (a mean Market-town, but adorned with a stately and strong Castle, the ordinary residence of the Presidents of Connaught) and Lough-Dergh, about half way betwixt Atlone and Limmerick, and a little below the said Town shee dischargeth her self again into another Lough, by far the biggest of all, the which extendin

tending it ſelf from Limmerick unto the ſea, and above fifty miles long, it is held by the Iriſh as well as the Engliſh not for a Lough, but for the Shanon it ſelf, and conſequently called with that name; whereof hath been ſpoken in the ſecond Chapter.

This River is wide and deep every where, ſo as ſhe would be navigable in her whole length, not only with Boats of all ſorts, but with reaſonable big Ships, to the great commodity of them that inhabit near it, were it not for the impediment of a certain Rock, ſome ſix miles above Limmerick, the which ſtanding acroſs in the chanel, and the River with great violence falling downwards over it, all communication of Navigation betwixt the upper and the lower parts of it is thereby abſolutely hindred.

Sir *Thomas Wentworth*, Lord Wentworth, and afterwards Earl of Strafford, he that in in the beginning of this preſent Parliament was beheaded, having been Governour of Ireland many yeares, firſt in the quality of Lord Deputy, and afterwards of Lord Lieutenant, had a deſign to take away that let, in cauſing of a new channel to be digged for a little way, whereby the River being made to alter her courſe, ſhould have avoyded that Rock; and to that purpoſe ſent certain skilfull men thither to view thoſe parts, and carefully to examine whether it were feaſible, who made report that it might be done, and would not coſt above ſeven or eight thouſand pounds ſterling, a ſum not very conſiderable in compariſon of the great profit which after-

afterwards would have been reaped from that work: Nevertheleſs it was never taken in hand, the intents of publick utility having been diverted and ſmothered by thoſe of private profit, as commonly it falleth out.

Sect. 2. *The Rivers Suck, Sure, Oure, Broad-water, Barrow, and Slane.*

There are ſeveral other Rivers in the Province of Connaught, but none of them is any ways comparable with the Shanon for length, breadth, or depth, and little to be ſaid of them, but that the Suck, the which falleth into the Shanon a little way below Atlone, is the principalleſt of all.

The two chief Rivers of Munſter are Sure and Broad-water, the City of Waterford being ſituated upon the firſt of thoſe two, the which cloſe by it diſchargeth her ſelf into that arm of the ſea which is known by the name of Waterford-haven. The other paſſeth by Liſmore, and falleth into the ſea by Youghall, where it maketh a Tide-haven. Next to thoſe two is the River of Cork, and then that of Kinſale, the which is but of ſmall moment, as alſo are the reſt of the Rivers of this Province.

In Leinſter is the Nure or Oure, the Barrow, the Slane, the Liffie, and the Boine, beſides ſome others of leſs moment.

The Oure and Barrow do mingle their waters at the Town of Roſs, from whence having paſt a little way together, they diſcharge themſelves into the right arm of the Haven of Waterford, and ſo in a manner doe meet the Sure,

Sure, who falleth into the other arm: For which conſideration theſe three Rivers were wont to be called the three Siſters, as *Giraldus* witneſſeth. Both the Oure and the Barrow are portable many miles into the country; the Oure onely with little Boats, and with Cots (they call in Ireland Cots things like Boats, but very unſhapely, being nothing but ſquare peeces of timber made hollow) but the Barrow with good big Boats. The Slane falleth into the Haven of VVexford, being like unto the Oure for length and bigneſs.

Sect. 3. *Of the Liffie and the Boine.*

The Liffie is the Princeſs of the Iriſh-Rivers, not for her bigneſs (for not only the Shanon, but the Boine, Barrow, and ſeverall others, do far ſurpaſs her therein) but becauſe Dublin, the chief City of all Ireland, is ſeated upon her banks; a mile below which City, at a place called Rings-end, ſhe loſeth her ſelf in a Bay of the Sea, which is called Dublin-haven. With the help of the Flood, ſhips of fifty and threeſcore tuns can make a ſhift to come up to the Key of Dublin, but when the Tide is out, and at the loweſt, the ſmalleſt boats find hardly water enough to go between Dublin and Rings-end, becauſe the chanel being very broad there, the water ſpreadeth it ſelf too much, and by reaſon thereof groweth very ſhallow. But in the City it ſelf, where ſhe is incloſed betwixt the Keys on both ſides, and from the bridge of Dublin untill the bridge of Kilmanan, and a little further, being ſomewhat more

more than a mile (in which ſpace ſhe runneth between her own banks) great boates may goe upon her at any time. She would be navigable with boats ſome three or four miles further; but the Weres, made in her a little way above the bridge of Kilmanan, doe hinder that. This River taketh her beginning in the mountaines lying to the South of Dublin, not above ten miles from it; but fetcheth ſuch a compaſs (bending her coaſt firſt to the Weſt, afterwards to the North, and laſtly, for ſeven or eight miles, Eaſtward) that from her originall to her mouth is the ſpace of no leſs than forty or fifty miles.

The Boine the River where-on Tredagh is ſeated, hath her beginning in Kings County, cloſe by the originall of the Barrow, although the place where the Barrow falleth into the haven of Waterford, is above fourſcore miles diſtant from the mouth of the Boine. This River is almoſt of an equall bigneſs in farre the greateſt part of her courſe, and would be portable of good bigg boates very many miles into the land, if that were not hindred by the Weres.

Sect. 4. *Of the Band and Blackwater.*

The principall River in Vlſter of thoſe that fall directly into the Sea, is the Band, the which as in her mouth, ſhe is incumbred with ſeverall inconvenients, as wee have declared above in the third chapter, ſo ſhe is portable but a few miles from the Sea, becauſe of a certain Rock, the which running acroſs the chanel from the one bank to the other, ſtoppeth all manner of paſſage; not only of bigger veſſels and barks, but of the ſmalleſt boates, which dare not come

neer the ſame Rock, becauſe it being ſomewhat high, and the water from it falling downwards with great violence, it goeth for ſome ſpace with a mighty current. This Rock or Cataract, called vulgarly the Salmon-leap (for a reaſon hereafter to be declared) and the Fall, becauſe of the falling down of the water, is not above four miles from the Sea, hindring all manner of communication between the ſame and Lough Neaugh, from the wch this Cataract is diſtant about three miles: whereas otherwiſe, if the paſſage of this River from the ſea to the Lough were open, ſhips might by that meanes goe a great way into the land, not only the whole length and breadth of Lough Neaugh (which every where is very deep, and navigable even for great ſhips) but even a good many miles farther (with good big boates) by meanes of ſome Rivers that fall into it, eſpecially the Black-water, which is the principalleſt of them all. For the Band, although ſhe giveth the name to the River going out of the Lough, is not comparable to the Black-water for breadth nor depth, beeing rather a brook than a River, the which being very ſhallow at other times, doth riſe ſo exceſſively upon the falling of much rain, that it is one of the moſt dangerous and terrible brookes of all Ireland, in the which therefore from time to time many men and horſes have been drowned at the paſſing of it.

Sect. 5. *Of the Lagen and Nury-water: tide-rivers.*

Beſides the Band and the Black-water, there is ſcarce any other River in Vlſter, but that which

which passing by Strebane and London-derrie, dischargeth it self into Lough-foile. For the Lagon, heretofore mentioned by us, which by Belfast falleth into the Sea; the Nury-water, whereof wee have spoken in the description of Carlingford-haven; and some others of that nature, are properly brooks, and not portable by reason of their own water, but of that which out of the Sea floweth into them; as appeareth clearly when the tide is out. For then they are as small, and as little portable in those places, where the boates and bigger vessels doe pass at high water, as are they at all times in those places unto which the tide doth never reach: which kind of Tide-rivers or brooks, which only by the comming in of the tide are made navigable for a little way, are to be found in all the Provinces of Ireland.

Sect. 6. *Of the Cataracts in the Irish Rivers.*

Besides that the navigable Rivers are but rare in Ireland, and that the most part of them are only portable of very small vessels and boats, not of any bigger ships or barks, as appeareth by the former relation, there be very few rivers, who have not some impediment or other in them, whereby it commeth that they are not portable so farre, as otherwise they would be. These impediments are chiefly three in number, Cataracts, Weres, and Foards; whereof the last two doe only concern the lesser Rivers. The first, to wit the Cataracts, are incident to the greatest Rivers as well as to others, as may appear by what wee have said concerning them in the description of the Shanon and the Band; whereby also fully may be conceived the

manner and natnre of the ſaid Cataracts, ſo as it is needleſs here again to delineate them.

Such a Cataract or Fall there is found in the Liffie, ſeven miles from Dublin, and about a quarter of a mile above the village and Caſtle of Leſlip, the deſcription of which as holding it not improper for this place, wee ſhall here ſet down as it came to our hands from thoſe who have obſerved it very exactly. The ſaid River running there abouts along a narrow and deep valley, being hemmed in at both ſides with high hils of a long continuance, hath a very Rockie chanel, and beſides that the bottom is overſpread in ſeverall parts with great maſſie ſtones, there is in two or three places, at no great diſtance, a continuall Rocky bulk reaching from one ſide to the other, leaving but one or two narrow paſſages, through which the ſtream runneth with a very ſtrong current, and a mighty noiſe, but the third and laſt bulk, like a Cataract hath the chanel cloſe to it, a great deal lower (by far more than the other, at leaſt by ſeven or eight feet) which is the cauſe that the ſtream doth not ſo much run ſwift here, or paſſeth with a current through narrow channels, as in the two firſt bulks, but as ſoon as it is got over the Rock it falleth ſteep down with great violence, the ſpace of three or four paces in breadth; where as the remainder of the main chanel is altogether ſtopped by the ſaid Rock. In winter and other very rainy ſeaſons, when the water doth increaſe much, it paſſeth over all the ſaid Rockes ſmoothly and without noiſe where the ſame is exceding great, thoſe times when the Liffie runneth with a ſmall ſtreame

There

There is also a Cataract in a small tide River in the County of Cork in Munster, the which falleth into the innermost corner of the great bay Bantrie, and one in the Haven of Balle-shanon, which haven being in effect nothing els but the mouth of Lough-Earne, commonly is counted for a River, and called by the name of Trowis

Sect. 7. *Of the Foards in the Rivers of Ireland a second impediment of their navigableness.*

Concerning the Foardes; it is to be observed, that not every where, where the high-wayes meet with great brooks or small Rivers, bridges are found for to pass them, but that in very many places one is constrained to ride through the water it self, the which could not be done, if the Rivers kept themselves every where inclosed between their bancks; wherefore they are not only suffered in such places, to spread themselves abroad, but men help there to as much as they can, to make the water so much the shallower and consequently the easier to be passed: whereby it commeth many times to pass, that a River which above and below the foard is deep enough to be portable of great boates, through the shallowness of the foards lying between, will bear none but of the very smallest; or where otherwise the same would carry small boats is not portable at all; this in most places might easily be remedied, in raising of dikes or artificiall banks, where the naturall ones failing doe minister opportunitie unto the Rivers for

to spread themselves; and making bridges to pass over. Some Foards, do not greatly impair the chanel of the Rivers, but leave the same almost in her full depth, especially in the midst; but the same, as they are more incommodious for the traveller, so they are not very frequent, but in far less number than the others.

Sect. 8. *Of the Weres, a third impediment of the Navigableness of the Rivers in Ireland.*

The Weres, a third let of the Navigation of the Irish Rivers, are thus ordered: They set up very big stones in the River, close together from the one side of the River to the other, leaving only one hole, either in the midst, or near one of the sides, before which hole, a Basket being layd, they take therein a great quantity of fish; for comming to the Weres, and finding their way stopt by the stones, they take their course to that place where they find an opening. These rows of stones doe not directly cross the River from the one side to the other, but doe go very much sloaping, that the stream with less force may beat against them: and the same also doe stand but very little above the water, to the end that when the flouds come the water may find a ready passage over them, without which they would not be able to subsist against the force thereof, but easily be thrown down and scattered.

Some Weres are set up, not so much for the taking of fish, as for Mils, and that the course of the water thereby being in part stopped in the main chanel, may be made to go into some little by-chanel, cut expressly for to conveigh the water

ter to the Mill: many Weres ſerving for both theſe uſes jointly.

Some Rivers have onely one of theſe impediments, as the Shanon and the Band, each a Fall or Cataract: The Boine, Weres; having onely Foards, many miles from the ſea. The greateſt number have Weres and Foards, and commonly each of them in ſeverall places. Some have all three, as the Liffie by name, which hath not only Weres and Foards in ſeverall places, but alſo a Cataract or Salmon-leap, as hath been mentioned above.

CHAP. IX.

Of the Lakes or Loughs in Ireland.

Sect. 1. *Of the little Loughs.*

LOughs there is a very great number in Ireland, eſpecially in the Provinces of Ulſter and Connaught, we may diſtinguiſh them into three ſeverall ſorts, Great, Middle-ſort, and the Leaſt. Under this laſt we comprehend all ſuch whoſe parts diſcover it ſelf to the eye all over at one time.

This ſort of Loughs are found in ſeverall places of the other Provinces, but nothing near ſo many as in Ulſter. Every one of theſe commonly ſends forth a Brook, and ſome more than one, being all of them very deep (the very leaſt not excepted) and well-ſtored with Fiſh: So as they are not only delightfull, eſpecially ſuch as are ſituated in ſome Dale or Valley, or environed

round about, or on ſome ſides with pleaſant little Hils (as it falleth out in the greateſt part of them) but alſo commodious and profitable, affording good opportunity to build houſes and Caſtles upon their borders, which was done in many places by the Engliſh and Scotch, who had made ſeverall fair Plantations, and would have done more, if it had not been hindered by that horrible Rebellion of the bloody Iriſh; in the beginning of which many of them which were already built have been deſtroyed by thoſe Barbarians.

Many of theſe little Loughs have a little Iland in the midſt, which is both commodious and pleaſant. Some wherein little Ilands doe float, not keeping long any certain place, but removing to and fro as the force of the wind doth drive them.

Sect. 2. *Of the Middle-ſort of Loughs.*

The Middle-ſort of Loughs we underſtand to be ſuch as far exceeding the fore-mentioned in bigneſs, nevertheleſs are not to be compared with the biggeſt ſort, of which we ſhall ſpeak preſently: Of this kind are Lough-Fin and Lough-Dirg in the County of Donegal in Ulſter, Lough-Mugkney in the County of Monaghan, and Lough-Sillon in the County of Cavan, both in the ſame Province; Lough-Ranmore in Eaſt-meath: beſides ſeveral others in other Counties of Leinſter, eſpecially in Queens-county, Longford, and Weſtmeath, having little or nothing worthy of obſervation.

Sect.

Sect. 3. *Of the Great Loughs, and first of those of Salt-water.*

The great Loughs are of two sorts, either of Sweet-water, as all the former; and some of Salt-water; these last being such through the mixture of the sea; the which finding an open entrance, and twice a day with the Tide fully flowing into them, maketh the water so salt. And it would be no great error to take all those Loughs wherein that happeneth, (viz. Lough Cone, in the County of Down; Lough-Foile, in the County of Colrain; Lough-Suille, in Tirconnell; and the Lough of Cork) rather for Inlets of the Sea than for Lakes, although the Inhabitants hold them all to be Loughs, and give them the name of Loughs: And in this number is also to be put that great Lough betwixt Limmerick and the sea, through which the Shanon discharged it self into the sea; of the which we have already spoke once or twice heretofore.

Sect. 4. *Of Lough-Earne, Lough-Neagh, and the rest of the great Loughs.*

Amongst the great Loughs of Sweet-water, are far the principallest Lough-Earne & Lough-Neagh, the first of which is situated in the confines of Ulster and Connaught, being in effect two different Loughs, joyned together onely by a short and narrow chanel; of which two, that which lyeth farthest within the land, doth extend it self in a manner directly North and South; but the second, which is next to the sea, doth lye East and West; so that both together they have the fashion of a bended elbow, being both very broad in the

the midst, growing by degrees narrower towards both the ends.

Lough-Neaugh lyeth in the North-Easterly part of Ulster, bordering upon the Counties of Tirone, Armagh, Down, Antrim, and Colrain, being of a round, or rather somwhat ovall figure.

Next in bigness to these two is Lough-Corbes, the same on whose neather-end the City Galloway is seated: The two Loughs thorough which the Shanon passeth, Lough-Ree, and Lough-Ding: *item* Lough-Fingarrow in Connaught, betwixt the Counties of Maio and Roscomen.

In the last place, as the least of this sort, are Lough-Allen, out of which the Shanon taketh his originall, being nine miles long, and three miles broad: Lough-Meske, situated betwixt Lough-Fingarrow and the Lough of Galloway; And Lough-Larne, in the County of Kerry in Munster, not far from the upper-end of those two famous Bayes Dingle and Maire. The least of these is some miles long and broad, and many miles in circuit; but the biggest are of so vast a compass, that they are more like a Sea than a Lough.

Sect. 5. *Of the Ilands in the Loughs.*

Most of these great Loughs are very full of little Ilands, and above all Lough-Earne, in which the same are numberless. In Lough-Cone also there is so great a number, that those who inhabit about it, affirm them to bee two hundred and threescore. Lough-Ree, and Lough-Ding are likewise very full of them: And

there

there is also a good many in Lough-Fingarrow, Lough-Larne, and Suille. But Lough-Foile is very free from them, and in the Lough of Cork there is not above one or two, as likewise in Lough-Neaugh, in which they lye near to the sides, leaving the midst altogether free.

Very few of these Ilands are inhabited or planted; but the most part being plentifully cloathed with very sweet Grass, serve for pastures to sheep and other cattle, the which doe thrive wonderfully well in them, and the same befalleth also in the middle sort of Loughs, amongst which likewise there be very few that have not some of these little Ilands in them.

In some few of these Ilands, especially of Lough-Earne and Lough-Ree, are some dwellings, whereunto persons who love solitarinesse were wont to retire themselves, and might live there with much contentment, as finding there not only privacy and quietness, with opportunity for studies and contemplations, but there besides great delightfulness in the place it self, with variety of very sweet pastimes in fowling, fishing, planting, and gardening. In one of the greatest Ilands of Lough-Earne, Sir *Henry Spottswood* had a fine seat, with goodly Buildings, Gardens, Orchards, and a pretty little Village, with a Church and Steeple belonging to it, which whither it is in being yet, or destroyed by the Barbarians and bloody Rebels, I am not informed. In Lough Sillon in the County of Cavan in a Iland not far from the bank where the River Nannei runneth into it, is a Castle built of form four square, which covereth the whole Ile, much after the manner of the Fort Eneskellin in Lough-Earne,

Earne, and so many more to long to be rehearsed.

Sect. 6. *Of St Patriks Purgatory.*

One of these little Ilands situated in Lough-Dirg (one of the middle-sort of Loughs) hath been very famous, for the space of some ages, over almost all Christendome; because the world was made to beleeve, that there was the suburbs of Purgatorie, into which whoso had the courage to goe, and remaine there the appointed time, did see and suffer very strange and terrible things: which perswasion having lasted untill our times, the matter hath been discovered within these few yeares, and found to be a meer illusion. This discoverie was made during the goverment of Richard Boile, Earle of Cork, and Adam Loftus, Vicount of Elie, and Lord Chancellour of Ireland: which two being Lords Justices of that Kingdome in the last yeares of King Iames, & desirous to know the truth of the businesse, sent some persons of qualitie to the place, to inquire exactly into the truth of the whole matter. These did find, that that miraculous and fearfull cave, descending down to the very Purgatorie and Hell, was nothing els but a little cell, digged or hewen out of the Rockie ground, without any windowes or holes, so as the doore beeing shut one could not see a jot within it, beeing of so little depth, that a tall man could but just stand upright in it, and of no greater capacity, than to contain six or seven persons. Now when that any person desirous to goe that Pilgrimage to Purgatory, was come into the Iland, the Friars,

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some small number whereof made their constant aboad there for that purpose, made him watch and fast excessively: whereby, and through the recounting of strange and horrible apparitions and fantasmes, which he would meet withall in that subterranean pilgrimage, being well preepared, they did shut him up in that little dark hole: and beeing drawn out again from thence after some houres, altogether astonished and in a maze, he would be a good while before he came again to himself; and afterwards the poor man would tell wonderfull stories, as if in very deed he had gone a great way under the ground, and seen and suffered all those things, which his weak imagination, altogether corrupted by the concurrence and sequel of so many causes to weaken the braine, did figure unto him.

To prevent this delusion in future times, the said Lords Iustices caused the Friars to depart from thence, their dwelling quite to be demolished, and the hole or cell to be broke open, and altogether exposed to the open aire, in which state it hath lyen ever since: whereby that Pilgrimage to Purgatory is quite come to nothing, and never hath bin undertaken since by any.

To beget the greater reputation to this fictitious Purgatory, the people was made to beleeve, that St Patrick, by whome the Irish were converted to the Christian-faith about four hundred yeares after the nativity of Christ, had caused the same, and obtained it of God by his prayers, to convince the unbeleevers of of the Immortality of the soul, and of the tor-

ments

ments which after this life are prepared for the wicked persons; wherefore also they gave it the name of St Patricks Purgatorie. But it is very certain, that nothing of it was known in Ireland during the life of that holy person, nor in a huge while after, it having been devised some Ages after his death, when that the general darkness of the times ministred a great opportunity of such like inventions, to those kind of men that knew how to abuse the blind devotion of ignorant and superstitious people to their own profit and filthy lucre.

Sect. 7. *Of the property of Lough-Neaugh, of turning Wood into Stone.*

Before we make an end of this Chapter, we must say something of the wonderful property which generally is ascribed to Lough-Neaugh, of turning Wood into Stone; whereunto some do adde, to double the wonder, that the Wood is turned not only into Stone, but into Iron; and that a branch or pole being stuck into the ground somewhere by the side, where it is not too deep, after a certain space of time one shall find that peece of the stick which stuck in the ground, turned into Iron, and the middle, as far as it was in the water, into Stone; the upper-end, which remained above the water, keeping its former nature. But this part of the History I beleeve to be a Fable: For my Brother, who hath been several times in places not far distant from that Lough, and who of the English there abouts inhabiting hath enquired this business with singular diligence, doth assure me, that

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he never could learn any such thing; but that the turning of Wood into Stone was by every one beleeved for certain, as having been tryed divers times by severall persons: saying moreover to have understood of them, that the water hath this vertue onely at the tides, and that not every where, but onely in some few places, especially about that part where the River Blackwater dischargeth her self into the Lough. He could never come to speak with any persons, who themselves had tryed this matter; but with severall, who affirmed, that to their knowledge it had certainly been done by others of their acquaintance. For further confirmation of this particular (which in it self is credible enough, seeing that in many parts of the world there are found waters indued with that vertue) serveth, that here and there upon the borders of that Lough are found little stones of a pretty length, some of them round in their compass, others flat, or flattish, and some angulous, the which being looked on, as well near as from afar off, seem to be nothing else but Wood, and by every one are taken for such, untill one come to touch and handle them: for then by their coldness, hardness, and weight, it appeareth that they are not Wood but Stone: Whereby it may probably be conjectured, that the same formerly having been Wood indeed, and so having kept their old shape and fashion, in length of time have been turned into a stony substance by the vertue of that water, wherinto they were fallen through the one accident or other.

Giraldus writeth, to have heard of a Well or Foun-

Fountain in the North-quarters of Ulſter, the which in ſeven years ſpace turneth into Stone the Wood caſt into it: But ſeeing that no body now adayes knoweth of any ſuch Well, and that with all my enquires I could never come to hear any news of it, I will beleeve, that *Giraldus* hath been miſ-informed, and that they have told him that of a Well which was proper unto this Lough.

CHAP. X.

Of the nature and condition of the Land, both for the outward ſhape, and for the internall qualities and fruitfulneſs.

Sect. 1. *Diſtinction of Ireland into Champain-Lands, Hils, and Mountains.*

THe Lands of this Iland, as of moſt all other Countryes, are of a various kind & faſhion: For ſome parts are goodly plain Champain, others are Hilly, ſome Mountainous, and others are compoſed of two of theſe ſorts, or of all three together, and that with great variety, the which alſo is very great, in thoſe three un-compounded ſorts.

Sect. 2. *A neceſſary obſervation about the uſe of the words* Hill *and* Mountain.

To avoyd all ambiguity, and make our ſelves clearly underſtood in what wee have ſayd, and

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are further to say upon this subject, wee think it necessary to forewarn our Reader, that we do use the word *Hill* in a narrower signification, than what is given to it in the ordinary use of speech. For whereas all, or most other Languages, both those which are now in vulgar use, and those which are only preserved in books, have two several words for to signifie those observable heights which appear above the ground, calling the bigger sort by one name, and the lesser sort by another: The English language useth one and the same word for both, calling *hils* aswell the one as the other, without any other distinction, but that sometimes the word *small* or *great* is added. Now because this word so indifferently used would cause some confusion in the matter we treat of, that hath made us restrain it to one of the sorts, and to call *hils* onely the lesser sort, called in Latin *collis*, in French *colline*, in Dutch *heuvel*, and in Irish *knocks*. As for the other and bigger sort, whose name in the aforesayd four Languages is *mons*, *mountain*, *berg*, *slew*, we call them mountains: which word *mountains*, although it be good English, yet in common speech it is seldom made use of in that sense whereunto we apply it, but only to signifie a Country wholly consisting of those great Hils, especially when the soyl thereof is lean and unfruitfull.

Sect. 3. *Of the Mountains of Ireland, and first of the lower sort.*

The difference betwixt Hils and Mountaines consisting in bigness, is of two sorts; for in the number of Mountains are counted not only those

which lift up themselves very high into the air so as they may be seen many miles off, but also those, the which take up the more in length and breadth, what is wanting to them in height, ascending slopingly by degrees.

The Mountainous parts of Ireland do for the most part consist of this second part of Mountains, most of them in one quarter being much-what of the same height, so as sometimes one shall ride some houres together, through the Mountainous country, without meeting with any one Mountain that greatly excelleth in height above the rest: The which in particular may be observed in the Mountainous Country of the Fuse, betwixt Dundalk and Armagh; In that of Mourne, betwixt the Nurie and Dondrom (each of those two being above twelve miles long) In all that space which is betwixt Kelles, a walled-town in the County of Eastmeath, and Kilacollie, *alias* Bailieborrough, in the County of Cavan, vvhich being ten miles long, is almost nothing else but a continuance of hils of no great bigness, all very fruitfull land both Pasture and Arable. In the County of Westmeath, from Lough-Crevv to Lough-Sillon, and beyond it, as far as Ballaneach, vvhere Mr *William Fleving* had built a fair house and Farm ten yeares before the late detestable Massacre and bloody Rebellion of the Irish. These hils are for the most part lovv and small, yet some of a good height and bigness; the ground lean, in many places very stony, in some rocky, not of any one continuall Rock, but by peecemeals here and there rising and appearing. Yet are these hils

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in severall places wet and moorish, aswell in the Rockie as other parts. These hills serve only for pasture of sheep. In the major part of the Mountainous country of Wickloe, the which beginning five miles to the South of Dublin, doth extend it self above fiftie miles in length; and in severall other parts.

It hath bin observed in many parts of Ireland, but chiefliе in the county of Meath, and further North-ward, that upon the top of the great hills and mountaines, not onely at the side and foot of them, to this day the ground is uneven as if it had been plowed in former times. The inhabitants doe affirm, that their fore-fathers being much given to tillage, contrarie to what they are now, used to turn all to plowland. Others say that it was done for want of arable, because the Champain was most every where beset and over spread with woods, which by degrees are destroyed by the warres. They say further, that in those times, in places where nothing now is to be seen, but great loggs of a vast extent, there were thick woods, which they collect from hence, that now & then trees are digged out there being for the most part some yards long, and some of a very great bignes and length.

Sect. 4. *Of the higher sort of Mountaines in Ireland.*

As for those other mountains, the which with an excessive height rise up towards the Skies, they are not very common in Ireland; and yet some there be, which although not comparable with the Pyrenæi, lying between France and Spain, with the Alpes, which divide Italy from France

Germany, or with other mountains of the like vaſt height, nevertheleſs may iuſtly be counted among the loſtie mountains. Of this number are the Mountains of Carlingford, betwixt Dundalke and Carlingford, the which in a clear day may eaſily be ſeen from the Mountains to the South of Dublin, the which are more than fortie miles diſtant from them; the Mountains about Lough Suillie, in the North-parts of Vlſter, the which may be ſeen many miles off in the Sea; the Curlews, that ſever the counties of Slego and Roſcoman in Connaught; the twelve Mountains in the North-quarter of the County of Tipperary in Munſter, the which farre exceding the reſt of the mountains there, are knowne by the name of *the twelve hils of Phelim ghe Madona*; Knock-Patrick, in the Weſt part of the county of Limmerick, not farre from the bay of Limmerick, which Mountain can be ſeen by the ſhips, which are a huge-way from the land yet; the Mountains of Brandon hills, in the County of Kerry, to the Eaſt of the haven of Smerwick, the which are diſcovered by the Sea-faring men, when they are above fifty miles from the land; in the North-weſt quarter of the county of Waterford, called Slew-Boine; that in the mountainous country of Wickloe, which for it's faſhions ſake is commouly called the ſugarloaf, and may be ſeen very many miles off, not only by thoſe that are upon the Sea, but even into the land.

Sect. 5. *Nature of the Ground in Ireland, and of the fruitfull grounds.*

Next to the fore-going diviſion of Ireland

taken

taken from the fashion and outward form of the land, commeth to be considered that which consisteth in the nature of the soil or grouud; some parts of the countrie beeing fruitfull, and others barren.

The fertile soil is in some places a blackish earth, in others clay, and in many parts mixt of both together: as likewise there be sundry places, where the ground is mixt of earth and sand, sand and clay, gravell and clay, or earth; but the chalke-ground and red earth, which both are very plentifull and common in many parts of England, are no where to be found in Ireland.

These grounds differ among themselves in goodnes and fatnes, not only according to the different nature of the soil whereof they consist, but also according to the depth of the mold or uppermost good cruft, & the nature of the ground which lyeth next to it underneath: for the best and richest soil, if but half a foot or a foot deep, and if lying upon a stiffie clay or hard stone, is not so fertile, as a leaner soil of greater depth, and lying upon sand or gravell, through which the superfluous moisture may descend, and not standing still, as upon the clay or stone, make cold the roots of the grasse, of corn, and so hurt the whole.

There be indeed some countries in Ireland, where the ground underneath being nothing but stone, and the good mold upon it but very thin, it is nevertheles very fruitfull in corn, and bringeth sweet gras in great plenty, so as sheep & other cattle do wonderful wel thrive there; which kind of land is very common in the County of Galloway, and in some other Counties of Con-

naught, as also in sundry parts of the other Provinces. But the reason thereof is in those parts, because the stone whereon the mould doth lye so thinly, is not Free-stone, or any such cold material, but Lime-stone, which doth so warm the ground, and giveth it so much strength, that what it wants in depth, is thereby largely recompensed.

Sect. 6. *Causes hindering the fruitfulness of the ground, where the soyl otherwise is not bad.*

Except in the case now by us declared, neither Corn nor Grass will grow kindly, where the ground, though otherwise good, is not deep enough, as also where it hath a bad crust underneath: From whence it commeth, that in many places, where the grass doth grow very thick and high, the same nevertheless is so unfit for the food of beasts, that cows and sheep will hardly touch it (especially if they have been kept in better pastures first) except that by extreme famine they be compelled thereto; and that by reason of the coarsness and sowerness of the grass, caused by the standing still of the water, the which through the unfitness of the neather crust, finding not a free passage downwards, maketh cold the good mold, and the crop and grass degenerate from its natural goodness.

For the same reason the land in many parts, where otherwise the soyl in it self would be fit enough to produce good Wheat or Barley, will hardly bear any thing else but Oats, or Rye, and that none of the best: As in other parts, the fault is in the soyl it self, and by the leanness there-

thereof it commeth, that nothing else but coarse grass, and the worst kinds of grains will grow there. And unto these causes may be joyned another yet, the overshadowing of high and steep Mountains and Hills, whereby the sides thereof, and the lands lying close under them, being deprived of the free and seasonable access of the Sun-beams, and so wanting convenient warmness, cannot afford to the things growing thereon such good and well-concocted nourishment, as unto the producing of the best and richest sorts of grains and grass is requisite.

Sect. 7. *Ireland a very fruitfull Country, especially for grasse.*

These defects are not peculiar to Ireland, but common to other countries, and nowise generall in it, but only here and there in distant parts; & where they are, they may be amended by the meanes fit & usuall for that purpose, whereof by-and-by wee shall speak particularly: Therefore they cannot hinder, that Ireland should not justly be counted among the fruitfullest countries of the world. And although *Orosius*, who preferreth it even before England in this particular (*Hibernia soli cœlique temperie magis utilis Britanniâ*, are his words) goeth too far, yet fullie true is the saying of Stanyhurst, in the preface of his Irish chronicle, *Cum Hibernia, cœli salubritate, agrorum fertilitate, ubertate frugum, pastionis magnitudine, armentorum gregibus, conferre paucas, anteferre nullas valeas*: that is, *With Ireland for wholesomness of air, fruitfulness of lands, great store of corn, abundance of pastures, and numerousnes of cattle, few countries*

may be compared, none preferred: as also that of Giraldus, *Gleba præpingui uberique frugum proventu felix est terra, et fœcunda frugibus arva, pecore montes*: that is, *This country is happy in very rich ground, and plentifull increase of graines, the fields beeing fertill in corn, and the mountains full of cattell.* But although Ireland almost in every part, where the industry of the Husbandman applieth it self thereto, bringeth good corn plentifully, nevertheless hath it a more naturall aptness for grasse, the which in most places it produceth very good and plentifull of it self, or with little help: the which also hath been wel observed by Giraldus, who of this matter writeth thus: *Pascuis tamen quam frugibus, gramine quam grano fœcundior est insula, This Iland is fruitfuller in grasse and pastures, than in corn and graines.* And *Buchanan* in the second book of his History of Scotland calleth the pasture-ground of Ireland *pascua fere totius Europæ uberrima*, the fruitfullest pasture ground of most all Europe.

Sect. 8. *More of the plenty and goodness of the Irish pastures.*

The aboundance and greatness of pastures in Ireland, doth appear by the numberless number of all sorts of cattle, especially of Kine and Sheep, wherewith this country in time of peace doth swarm on all sides, whereof in another place shall be spoken more at large: and the goodness of the same is hereby sufficiently witnessed, that all kind of cattle doth thrive here as well in Ireland, and give as good milk, butter, & cheese (with good handling) as in any other country.

It

It is true, that the Irish kine, sheep, and horses, are of a very small size: but that that doth not come by reason of the nourishment and grass, but through other more hidden causes, may easily be demonstrated by the goodly beasts of the forenamed kind, that are brought thither out of England, the which not only in themselves, but in all their breed, doe fully keep their first largenes and goodnes, without any the least diminution in any respect, so that before this last bloody rebellion the whole land, in all parts where the English did dwell, or had any thing to doe, was filled with as goodly beasts, both Cowes and Sheep, as any in England, Holland, or other the best countries of Europe: the greatest part whereof hath been destroyed by those barbarians, the naturall inhabitants of Ireland, who not content to have murthered or expelled their English neighbours (upon whom with an unheard-of and treacherous cruelty they fell in the midst of a deep Peace, without any the least provocation) endeavoured quite to extinguish the memory of them, and of all the civility and good things by them introduced amongst that wild Nation; and consequently in most places they did not only demolish the houses built by the English, the Gardens and Enclosures made by them, the Orchards and Hedges by them planted, but destroyed whole droves and flocks at once of English Cowes and Sheep, so as they were not able with all their unsatiable gluttony to devour the tenth part thereof, but let the rest lye rotting and stinking in the fields.

The goodnes of the pastures in Ireland doth further

further appear by this, that both Beef and Mutton there, as well that of the small Irish, as that of the large English breed, in sweetness and savourines doth surpass the meat of England it self as (all those, who have tried that, must confess) although England in this particular doth surpass almost all the countries of the world.

Nevertheless the saying of *Pomponius Mela*, That the grass here is so rank and sweet, that the cattle doe burst, if they be suffered to feed too long, wherefore they be fain every day to drive them betimes out of the pastures, *Juverna adeo luxuriosa herbis, non lætis modo, sed etiam dulcibus, ut se exigua parte diei pecora impleant, & nisi pabulo prohibeantur, diutius pasta dissiliant*: The which also hath been repeated by *Solinus*, *Hibernia ita pabulosa, ut pecua ibi, nisi interdum à pascuis arceantur, in periculum agat satiet*: That is, *Ireland hath such excellent pastures, that cattle there are brought into danger of their lives by over-feeding, except now and then they be driven out of the fields*; is a meer fable, no wayes agreeable to the truth: For all kinds of cattle here, as in other countries, are continually left in the pastures day and night: neither doe they through their continuall feeding ever burst, or come into any danger of bursting.

CHAP.

CHAP. XI.

Of the severall manners of manuring and inriching the ground practised in Ireland.

Sect. 1. *In some part of Ireland the ground never needs dunging.*

TO amend the lean and faulty grounds, to enrich both them and the good ones, and to keep both the one and the other in heart, in preserving them from being exhausted, the dunging of the ground is usuall in Ireland, as in other Countries. It is true, that as approved Authors assure us, in the Iland of Zealand, part of the Kingdom of Denmark, the naturall richness of the ground is such, and so lasting, as it needeth not the succour of any artificial helps, but is very fruitfull, and aye preserveth its fertility, without putting the Husbandman to the labour and costs of dunging. That likewise there is some part in the Province of Munster in Ireland, where very credible persons have assured me, of their own knowledge, that the land never needeth any dunging; so as the inhabitants thereof never trouble themselves to keep the dung of their beasts, but from time to time fling it into a River which runneth by them. But this happiness and richness of soil as it is very rare over all the world, so in Ireland too, being confined to very narrow bounds, all the rest of the Kingdom is necessitated, for the ends aforesaid, to help and improve their Lands by dunging; the which they do severall manner of wayes.

Sect.

Sect. 2. *Of Sheeps-dung.*

The commoneſt ſort of manuring the lands in Ireland, is that which is done with the dung of beaſts, eſpecially of Cows and Oxen, and alſo of Horſes mixed with a great quantity of ſtraw, and having lyen a long while to rot and incorporate well together: Whereof, as of a matter every where known and uſuall, it is needleſs to ſpeak further.

Onely thus much ſeemeth good to us not to paſs over in ſilence, that if Sheep here, as in other countries, were houſed and kept up in ſtables for any long time together, their excrements would make better dung, than that of any other four-footed creatures. For the land on which ſheep have fed for two or three yeares together, or longer, is ſo greatly enriched thereby, that when it commeth to bee plowed, it bringeth a much fairer and plentifuller crop, than if from the beginning it had been made Arable, and dunged after the ordinary manner. Wherefore alſo great Sheep-maſters may ſet their land, where the ſheep have been feeding ſome yeares together, as dear again by the Acre, than what at the firſt they could have got for it of any body.

Wherefore alſo it is an uſuall thing in Ireland, as well as in England, to drive the ſheep upon the Fallow, and to keep them there untill all the hearbs which may miniſter any food unto the Sheep be by them conſumed; which doth the ground a great deal of good, and giveth it heart to bring afterwards the better increaſe. And the ſame alſo helpeth greatly for to make good graſs grow upon the Arable, when the ſame is turned into

into Pasture and Meddow; a thing ordinarily used in sundry parts of Ireland, and many times necessary for to keep the lands in heart: For ground being plowed, and the Sheep driven thither as soon as any herbs grow upon it, they do not only consume the Thistles, and other useless herbs, but cause good grass to grow up in lieu thereof, and that speedily. For in all places where their dung lighteth, of the best and sweetest sorts of grass do grow, and that within the first year, which otherwise would not have come in much longer time, and that nothing near so good generally.

Sect. 3. *An usefull observation about Cows-dung.*

There is a notable difference betwixt Sheepsdung and that of other cattle, as in the goodness and richness it self, so in the particular last mentioned by them. For that of Oxen and Cows is no wayes fit for dunging untill it is grown old, and hath lyen a soaking with straw a great while: Dayly experience shewing in Ireland, as in England and other countryes, that in those places of the pastures where the fresh Cow-dung falleth and remaineth, the grass the next year doth grow ranker and higher than in the rest of the same fields, but so sowre and unpleasing, that the beasts will not offer to touch it; so as ordinarily you shall see these tufts of grass standing whole and undiminished in the midst of pastures, that every where else are eaten bare and to the very ground. The which as in part it may bee imputed to the quantity of the dung, the which being greater than the earth can well digest, and conveniently unite with it self, cannot be turned into

into so good and sweet nourishment; so doth it also without doubt come in part through the very nature of the dung, the which of it self, and without a long preparation and alteration, is not so fit to nourish the ground, as that of sheep.

Sect. 4. *Of Pigeons-dung.*

Pigeons-dung also is very convenient for the improvement of the ground: and I know some in Ireland, who having tryed that, have found a wonderfull deal of good in it, incomparably more than in that of any four-footed beasts, and of Sheep themselves. But the Pigeon-houses no where in Ireland being so big as to afford any considerable quantity, and never having heard of any body there who could dung more than an Acre or two with all the Pigeons-dung which had been gathering the space of a whole twelve-moneth, it cannot well be reckoned among the common sorts.

Sect. 5. *Of Ashes and Mud.*

Besides the dung of Beasts there are usuall in Ireland, or were before this Rebellion, five or six other sorts for to Manure and Improve the ground, whereof some are as good as the dung consisting of the excrements of beasts, and others do far surpass it: One of these sorts is Ashes, and Mud another.

As for the first, I have understood of Englishmen, who had lived many years in Ireland, and all that while had exercised Husbandry, that they had used to gather all their Ashes of their hearths, bake-houses, and brew-houses, being Wood-

ashes,

ashes, and to lay them of a heap somewhere in the open air, from whence at convenient times they would carry them upon their grounds, and there spread them in the same manner as other dung, but nothing near in so great a quantity; wherein they affirmed to have found as much and more good than in any dung of beasts.

And I know several other English, who living in Ireland, did use to take the scouring of their ditches, together with other Mud digged out of the Bogs, and having let it lye a good while a rotting in great heaps, did afterwards carry it upon their lands in lieu of dung: the which they found very good and usefull for that purpose.

These two sorts were never yet brought into common use, but onely practised by some few persons, especially that of the Ashes, although in other Countries they have been known long since; so as *Pliny*, who lived about fifteen hundred years ago, writeth in the ninth Chapter of the seventeenth Book of his Natural History, that in his time in that part of Italy which is situated between the Alpes and the River Po (comprehending those Countries which now are known by the names of Piemont and Lombardy) Ashes were more used and commended for the manuring of the grounds, than the dung of beasts.

As concerning the burning of the Heath, and other dry herbs standing upon the ground, for to manure the land with the ashes thereof, that not properly belonging to this place, shall be spoke of more at large in some of the ensuing Chapters.

Sect.

Sect. 6. Of Lime.

The Engliſh living in Queens-county in Leinſter, having ſeen that in ſundry parts of England and Wales, eſpecially in Pembrookſhire, Lime was uſed by the inhabitants for the manuring and inriching of their grounds, begun ſome years ſince to practiſe the ſame, and found themſelves ſo well thereby, that in a ſhort time the uſe thereof grew very common amongſt them, ſo as many of them ever after uſed no other kind of dung.

The manner of it was thus. Having firſt plowed their fields, they carryed the Lime on them, and layd it in many ſmall heaps, leaving a convenient diſtance between, in the ſame manner as uſeth to be done with the dung of beaſts; and having let them lye for ſome moneths, they plowed the land again to convey the Lime into the ground.

This made it ſo rich, that in a great while after nothing elſe needed to be done to it, but to let the land at a certain revolution of time lye Fallow, no other manuring at all being requiſite for ſome yeares after: And all that while the land was very fruitfull, more than it could have been made with any ordinary dung, and very free of all ſorts of bad herbs and weeds (eſpecially for the firſt yeares) bringing Corn with much thinner huskes than that growing upon other lands.

They found that the Lime carryed upon the Land hot out of the Kiln, did more good in all the fore-mentioned particulars, than when they let it grow cold firſt. And this they could doe very

very easily, because Lime-stone is very plentifull in that County, especially in the Town of Monrath, where there is a whole hill of that stone, of that bigness, that if all the adjacent Country did continually fetch it from thence for the forenamed use, it would for ever hold out sufficiently.

The Land thus manured and improved by Lime, shewed its fruitfulness not only in the following yeares, but even in the first, except the Lime had been layd on in undue proportion, and in greater quantity than was requisite; for in that case the Lime burnt the Corn, and the first years Crop was thereby spoyled.

In some places where the land was not cold and moyst enough to bee able to endure meer Lime, they mixed the Lime with earth digged out of pits, and let that stuff lye a mellowing in great heaps for some moneths together, and afterwards carryed it on the land, and manured that therewith.

Sect. 7. *A remarkable historie concerning the excellencie of Lime for the inriching of the ground.*

How incredibly the land was inriched by this kind of manuring, may be gathered by the ensuing particular. The whole Lordship of Monrath was thirty yeares agoe set by one Mr. Downings (whose it was, and who afterwards sold it to Sir Charles Coot) for fifty pounds sterling by the year, and nevertheless after a while the Farmers surrendred it unto him, complaining that they could not live by it, but were quite impoverished: where as they who farmed it next after them (beeing people newly come out

of England) & gave an hundred and fifty pounds ſterling a year ſterling for it, did not only live very freely upon it, yea grew rich and wealthie, but withall did ſo farre forth improve the land, partly indeed with building, planting, hedging, and the like, but chiefly by this kind of manuring that: at the time when this laſt horrible rebellion broke forth, the ſame Lordſhip, if it had been to let out then, mighe have been let for five hundred pounds ſterling a year: as it hath been aſſured me by ſome, who themſelves had been farmers of that land.

Sect. 8. *Another hiſtory, ſhewing the efficacy of Lime in this particular.*

Before we give over this diſcours of Lime, we ſhall adde to what hath been ſaid already, that in ſome other parts of Ireland, where this manuring with Lime was not uſed nor known, the vertue of Lime in this particular hath been found out by meer chance. For ſome perſons known to me, who lived but a few miles from Dublin, having underſtood that the crowes (wherewith they were much plagued, and who did uſe to make very great ſpoil of their grains) would not touch the corn wherewith the lime was mixed, did cauſe unſlaked Lime to be mingled with water, making it as thinne as if it had been for the whitening of walls, and very well beſprinkled the corn therewith, before it was carried to the fields to be ſowen, and that after this manner, the corn lying on a heap, one turned it with both hands, whileſt another ſprinkled on the fore-ſaid ſtuff, doing ſo until the whole heap was thoroughly beſprinkled: the

other

other times they mingled dry lime with the corn, and afterwards besprinkled the whole heap with fair water through and through, for the same purpose, and hereby they did not only obtain the aforesaid end, of preserving the corn from the crowes, but had thereby a fairer and better crop, than ever before their land had produced.

Sect. 9. *Of Sea-sand.*

Lime is much used in the province of Munster, as in other parts of Ireland, so for to manure the ground withall, where the sea-sand likewise is greatly used to the same end, not only in places lying on the seaside, but even ten, twelve, and fifteen miles into the land, whether it was carried in some places by boats, and in others upon carts, the charges being sufficiently recompensed by the profit comming from it. For they used it for the most part only upō very poor land, consisting of cold clay, and that above half a foot deep: which land having been three or four times plowed & harrowed (in the same manner as is usuall to be done with fallow) the sand is strawed all over very thinly, a little before the sowing time: the which beeing done, that land bringeth very good corn of all sorts, not only Rye and Oates, but even Barley and Wheat, three yeares one after another; and having lyen fallow the fourth year, for many years after it produceth very clean and sweet grass; whereas formerly, and before it was thus manured, it produced nothing but moss, heath, and short low furze: which herbs are fired upon the ground, and the ground stubbed, before it be plowed the first time

It is not any peculiar sort of Sea-sand, nor out of any particular places, which is used for this purpose; but that which every where lyeth on the strands. And this manner of manuring the land with Sea-sand is very common in the two most Westerly shires of England, Cornwall and Devonshire, from whence those, who first practised it in Ireland, seem to have learned it.

Sect. 10. *Of Brine or Pickle.*

The goodness of the Sea-sand consisteth chiefly in its Saltness, for which reason Pickle it self is very good for this purpose: it beeing very well known to severall English dwelling about the Band and Colrain, that were Farmers of the Salmon-fishing there, who used every year carefully to keep the foul pikle, comming of the Salmons at their repacking; and having powred it among the ordinary dung of cattle and straw they did let them ly a good while a mellowing together. Hereby it was greatly strengthened and enriched, so that the land being dunged with it, did bear much better and richer crops than that which was manured onely with common dung without the mixture of it.

CHAP. XII.

Sect. 1. *Of the Marle in Ireland, and the manner of Marling the land there.*

MArle is a certain sort of fat and clayish stuff, being as the greale of the earth; it hath

hath from antient times bin greatly used for manuring of land both in France and England; as may appear out of *Pliny* in the sixth, seventh, and eighth Chapters of his seventeenth Book. The same also is still very usual in sundry parts of England, being of an incomparable goodness: The which caused the English, who out of some of those places where Marle was used were come to live in Ireland, to make diligent search for it, and that with good success at last, it having been found out by them within these few years, in severall places; first in the Kings-county, not far from the Shanon, where being of a gray colour, it is digged out of the Bogs; And in the County of Wexford, where the use of it was grown very common before this Rebellion, especially in the parts lying near the sea; where it stood them in very good steed, the land of it self being nothing fruitfull. For although the ground (for the most part) is a good black earth, yet the same being but one foot deep, and having underneath a crust of stiff yellow clay of half a foot, is thereby greatly impaired in its own goodness. In this depth of a foot and a half next under the clay, lyeth the Marle, the which reacheth so far downwards, that yet no where they have come to the bottom of it. It is of a blew colour, and very fat (which as in other ground, so in this, is chiefly perceived when it is wet) but brittle and dusty when it is dry.

Sect. 2. *The manner, charges, and profit of Marling the ground.*

The Marle is layd upon the land in heaps; by some before it is plowed, by others after, many

letting it lye several moneths ere they plow it again, that the Rain may equally divide and mixe it; the Sun, Moon, and Air mellow and incorporate it with the earth. One thousand Cart-loads of this goeth to one English Acre of ground; it being very chargeable, for even to those who dig it out of their own ground, so as they are at no other expences but the hire of the labourers, every Acre cometh to stand in three pounds sterling. But these great expences are sufficiently recompenced by the great fruitfulness which it causeth, being such, as may seem incredible; for the Marled-land, even the very first year, fully quitteth all the cost bestowed on it. There besides it is sufficient once to Marle, whereas the ordinary dunging must be renewed oftentimes.

Sect. 2. *The usage of the Marled-land, practised by them of the County of Wexford.*

The good usage of the Marled-land, to keep it in heart for ever after, doth consist, in the opinion and practise of some, in letting it ly Fallow at convenient times, but the ordinary manner, commonly practised by the inhabitants of the County of Wexford, and counted the best by them, is, that having sowed it five or six years together, with the richest sorts of Corn, to wit, Wheat and Barley (especially that sort which in some parts of England, and generally in Ireland, is peculiarly called Bear, being a much richer Grain than the ordinary Barley) it being afterwards turned to Pasture, whereunto it is very fit, for-

forasmuch as it bringeth very sweet grass in great abundance; For the Marle is also used on Meddows at the first, with very good success, improving the same most wonderfully.

If the Marled-land be thus used, and by turns kept under Corn, and Grass, it keeps its fruitfulness for ever; where to the contrary, if year after year it be sowed till the heart be drawn out, it's quite spoyled, so as afterwards it is not possible to bring it again to any passable condition by any kind of Dunging, or Marling. This would ordinarily be done in the space of ten yeares; for so long together the Marled-land may be sowed, and bring every year a rich crop of the best Corn.

Nevertheless this is not generall, but taketh place onely in the worser kind of ground; for where the land of it self is better and richer, there after Marling, Wheat and other Corn may be sowed, not only for ten yeares together, but longer: For very credible persons have assured me, that some parts of the County of Wexford having born very good Corn for thirteen yeares together, and afterwards being turned to Pasture, it was as good and fertile as other Marled-grounds that had been under Corn but five or six years.

Sect. 4. *Of the Marle in Connaught.*

The Province of Connaught (by what hath been discovered) is much more plentifull in Marle, than Leinster, as in other Counties, so in those of Roscoman, Slego, and Galloway, almost in every part of it. It is there of three

several colours, some being white as chalk, other gray, and some black; but none blew, as that in the County of Wexford. It lyeth nothing deep under the upper-ground, or surface of the earth, commonly not above half a foot; but its own depth is so great, that never any body yet digged to the bottom of it.

The land which they intend to Marle in this Province, is commonly plowed in the beginning of May, and lying five or six weeks (untill it be sufficiently dryed and mellowed by the Sun and Wind) they harrow it, and then having brought the Marle upon it, five or six weeks after it is plowed again, and a third time about September. After which third plowing they sow it with Wheat or Barley, whereof they have a very rich crop the next year.

Sect. 5. *Property and usage of the Marled-lands in Connaught.*

Land Marled in that manner as we have said, may be sowed ten or twelve yeares together; the first eight or nine with Wheat, and Bear, or Barley, and the remaining three or four years with Oates, afterwards the land is turned to pasture, and having served some years in that kind, it may be Marled anew, and made as good for Corn as at the first.

For the observation of those of the County of Wexford, that land may not be Marled more than once, doth not take place in Connaught, where it is an ordinary thing, having some space of years to make it again. I know

some

some Gentlemen who have caused some parcels of land to be Marled thrice in the space of twenty yeares, and have found very good profit by it. But whether this be caused by the difference of the ground and Marle (appearing also hereby, that in Connaught they scarce lay the fourth part of the quantity of Marle on the ground of what they doe in the County of Wexford) or by the carelesnes or want of experience of those of that County, I am not yet fully informed. But thus much is known as well in Connaught as other parts, that those who sow the Marled-land untill it can bear no more, and be quite out of heart, wil find it exceeding difficult, if not altogether impossible ever to amend or improve the same again by any means whatsoever.

CHAP. XIII.

Of the Heaths and Moores, or Bogs in Ireland.

Sect. 1. *Of the Moory, or Boggy-heaths.*

HAving spoke of the fruitfull lands of Ireland, it followeth that we treat of those which are neither fit for the bringing of Corn, or feeding of Cattle; some being such for want of good soyl, and others through superfluous moysture.

Of the first sort are those places where the ground consisting of meer rock, sand, or earth, naturally

naturally unfruitful hath no good mold at the top sufficient for Corn or Grass to root, and to draw convenient nourishment out of it, the ground being bare, or over-grown onely with Moss, Heath, Furze, Brakes, Thorns, Rushes, and the like.

The places whose ground is bare, are nothing frequent, nor of any great bigness in Ireland, and rather on the Sea-side than within the land. But the other are very common throughout the whole Kingdom, not only in the Mountains (many whereof do for the most part consist of nothing else) but also in the Hilly-quarters, the Plain-countries, and in many places of great extent, taking up some miles in length and breadth. Most of these Wasts in the Plain-countries and Valleys, as also some on the Mountains and Hils, are Moory and Boggy, fit for to dig Turf out, to the great commodity of the inhabitants, in places where other fuel is wanting. So that these parts of Land, although barren and producing no kind of thing for the food of man or beasts, may not be reckoned in the number of those which are altogether unprofitable, being of good use in the parts far distant from the Sea, where they can have no Sea-coales, and where Woods are wanting, nor well live. Some of these dry, or red Bogs, as commonly they are called (the first, in comparison of those whereof presently shall be spoken, the other, because the earth in them for the most part is reddish, and over-grown with Moss of the same colour) are in some parts of a vast extent; instance that by the Shanon-side, beginning

hard

hard by Atlone, and following the course of the River down towards Limmerick, which being two or three miles broad in most parts, is said to be upwards of fifty miles in length.

Sect. 2. *Of the dry Heaths.*

There are some dry Heaths in Ireland, for the most part on the mountains, and very few in the plain countries; to the contrary of England, where, as well as in Netherland, Germany, and other countries, those Heaths on plain ground are very common in sundrie parts of the land, and many of them of a great extent, having very many miles in compass; and where any such dry Heaths are in Ireland, the land for the most part is not altogether barren, but grassy between and at the bottome of the heath; so as the heath being burnt (a thing much used in Ireland both by the English and Irish) the land bringeth reasonable good and sweet grass, fit for sheep to feed on; and with a little extraordinary labour and costs brought to bear corn.

Others of these Heaths are grassie, having the grass growing not all over among the heath, but in spaces by it self: as upon the Heath between the town of Kildare and the Liffie; which is famous over all Ireland by the name of the Currogh of Kildare, being a hilly ground, at its highest neer the said town, from thence towards the Liffie descending by degrees, about three miles long, and two or three broad, divided into rowes, of heath and grass; which being of no great breadth, and many in number, doe lye by the side one of another throughout the whole earth, each of those rowes extending it

self

self in length from the one end of the Currogh to the other. The rowes of Heath are about a stone cast over in some places, in some more, in others less: but those of grass a good deal narrower than the others, being alwayes alike green and dry, in the winter as well as the summer, and clothed with short grass, but very sweet and good, very convenient for sheep to feed on; of the which alwaies in time of peace, a very great number is grazing here, the whole Currogh being a Commons.

Sect. 3. *Of the Wet Bogs*

The places barren through superfluous moisture, are bogs called by the Irish Moones, whereof Ireland is full. There is three or four different sorts of them; grassy, watery, muddy, and Hassocky, as appeareth more largely by the following description. But the English Irish have given the name of Bogs, not only to the wet, of which we are now to treat, but alwell to the turf moores of all sorts, not excepting the red bog; which in most places is firm enough to bear a man, or unshod nagge going over it, but is not for any great weight. But we shall in the following chapters speak in order of the four sorts of wet bogs, which above wee have mentioned, and afterwards in its due place treat of the turf and red moores, as occasion shall require.

Sect. 4. *Of the Grassie Bogs*

The grassy Bogs are all over covered with grass, looking fair and pleasant, as if they were dry ground and goodly meadowes; whereby many, who not knowing the nature of those places,

places, and becauſe of the greeneſs ſuſpecting no evill, goe into them to their great trouble, and many times to the extreme danger of their lives, for the earth being very ſpongy can bear no weight, but as well men as beaſt, aſſoon as they ſet foot on it doe ſink to the ground, ſome knee deep, others to the waſt, and many over head and ears; for all or moſt bogs in Ireland having underneath a hard and firm gravell are not of an equall depth, which in ſome is only of two or three feet, in others five, ſix or more, in ſomuch that thoſe who fall into the deepeſt places of theſe bogs, can hardly eſcape, but for the moſt part doe periſh, being pittifully ſmothered.

Some of theſe bogs, doe ſo dry up in the ſummer that they may be paſſed without danger; the which in particular falleth out in the great Mountaines in Munſter in the county of Kerry, called Slew-Logher, upon which all kind of cattle doe graſe the ſummer long being every where full of good and ſweet graſs, knee deep in moſt places; whereof not the tenth part being eaten (for if all the cattle of that Province were driven thither and left all the ſummer upon the place it would hardly be conſumed) the reſt is ſpoyled when the wet weather cometh in, and ſtayeth the rain-water from deſcending; through which the ground rotteth in that manner, that all winter long it is unpaſſable for men and beaſts.

But the deepeſt bogs are unpaſſable in the ſummer as well as in the winter, yet moſt of them have firm places, in narrow paths, & in ſome larger parcels, by the meanes whereof thoſe, unto whom they are known, can croſs them from

one

one side to another, where others who are not used to them doe not know in what part to set one step; in which nimble trick, called commonly treading of the Bogs, most Irish are very expert, as having been trained up in it from their infancy.

The firm places in passing, or but lightly shaking them, tremble for a great way, which hath given them the name of Shaking-Bogs; and where they are but of a small compass, Quagmires.

Sect. 5. *Of the Watery-Bogs, and of the Miry-Bogs.*

The Watery-bogs are likewise clothed with Grass, but the water doth not sink altogether into them, as into the former, but remaineth in part standing on the top (in the same manner as in some of the Grassie-bogs, and in all the low Pastures and Meddows of Holland) by reason whereof these Bogs are not dangerous; for every one at the first sight may easily discern them from the firm ground.

These two sorts are in many parts found apart, and in others mixt and interlaced; and likewise parcels both of the one and the other are found up and down in the Moory-heaths and Red-bogs.

Both these sorts, as well the watery as the Green-Bogs, yeeld for the most part very good Turf, much better than the Red-Bogs, whereof more shall be spoken hereafter.

The Miry-Bogs do consist of meer Mud and Mire, with very little or no grass upon them. These are commonly of a very small compass, whereas

whereas moſt part of the other two are of a notable extent, and ſome of ſeveral miles in length and breadth.

Sect. 6. *Of the Haſſockie-bogs.*

Haſſockie-bogs we call thoſe, whoſe ground being miry and muddy is covered over with water a foot or two deep, in ſome places more, in others leſs; ſo as one would ſooner take them for Loughs, were it not that they are very thick over-ſpread with little Tufts or Ilets, the which conſiſting of Reeds, Ruſhes, high ſower Graſs, and ſometimes with little Shrubs, for the moſt part are very ſmall, and have but a few feet in compaſs; ſome of them being of the bigneſs of a reaſonable big chamber. Theſe little Ilets or Tufts being ſo many in number, and ſpread over all the Bog, there remaineth nothing between them but great Plaſhes of water (in regard whereof theſe Bogs might well be called Plaſhy-Bogs) in ſome places wider, in others narrower, ſo as from the one men may well ſtep or leap to the other; that which thoſe who are expert in it know how to do very nimble, and ſo to run from one part of the Bog to another: For the roots of the Ruſhes, Reeds, and other things growing on thoſe Tufts, are ſo interwoven, that they can eaſily bear a man who lightly treadeth upon them, although they have very little earth, and are wondrous ſpungy; ſo as they, when the water being drained, the Bog is dried round about, may eaſily be plucked from the ground.

The Engliſh inhabiting in Ireland have given

given these Tufts the name of Hassocks, and this sort of Bogs, Hassocky-bogs: Of which Bogs Munster and other Provinces are not altogether free, but most of them are found in Leinster, especially in Kings and Queens-county, where also the othtr sorts of Bogs are very common; whereas otherwise Connaught is generally fuller of Bogs than any of the other Provinces.

CHAP. XIV

Originall of the Bogs in Ireland; and the manner of Draining them, practised there by the English Inhabitants.

Sect. 1. *Of the orginall of Bogs in this Countrie.*

VEry few of the Wet-bogs in Ireland are such by any naturall property, or primitive constitution, but through the superfluous moysture that in length of time hath been gathered therein, whether it have its originall within the place it self, or be come thither from without. The first of these two cases taketh place in the most part of the Grassie-bogs, which ordinarily are occasioned by Springs; the which arising in great number out of some parcel of ground, and finding no issue, do by degrers soak through, and bring it to that rottenness and spunginess, which nevertheless is not a little increased through the

the rain water comming to that of the Springs.

But the two other sorts, *viz.* the Waterie and Hassockie-bogs, are in some places caused by the rain-water onely, as in others through brooks and rivelets running into them, and in some through both together; whereunto many times also cometh the cause of the Grassh-bogs, to wit the store of Springs within the very ground: and all this in places, where or through the situation of them, and by reason of their even plainness or hollowness, or through some other impediment, the water hath no free passage away, but remaineth within them, and so by degrees turneth them into Bogs.

Sect. 2. *Ketchlesness of the Irish, cause of most of the Bogs. Of trees found in Bogs.*

So that it may easily be comprehended, that whoso could drain the water, and for the future prevent the gathering thereof, might reduce most of the Bogs in Ireland to firm land, and preserve them in that condition. But this hath never been known to the Irish, or if it was, they never went about it, but to the contrarie let daily more & more of their good land grow boggy through their carelesness, whereby also most of the Bogs at first were caused.

This being otherwise evident enough, may further be confirmed by the whole bodies of trees, which ordinarily are found by the turf-diggers very deep in the ground, as well of other trees, as of Hasels: likewise they meet sometimes with the very Nuts themselves in great quantity, the which looking very fair and whole [illegible] outside, as if they came but new [illegible]

have no kernell within the same, through the great length of time beeing consumed and turned into filth.

And it is worthie of observation, that trees, & truncks of trees, are in this manner found not only in the Wet bogs, but even in the Heathy ones or Red bogs, as by name in that by the Shanonside, wherof hath been spoken above: In which bog the turf diggers many times doe find whole Firr-trees deep in the ground; whether it be that those trees, being fallen, are by degrees sunk deeper and deeper (the earth of that Bog almost every where being very loose and spungy, as it is in all such Bogs) or that the earth in length of time bee grown over them.

Sect. 3. *Draining of the Bogs practised by the Englisb in Ireland.*

But as the Irish have been extreme careless in this, so the English, introducers of all good things in Ireland (for which that brutish nation from time to time hath rewarded them with unthankfulnes, hatred, and envy, and lately with a horrible and bloody conspiracie, tending to their utter destruction) have set their industrie at work for to remedy it, and having considered the nature of the Bogs, and how possible it was to reduce many of them unto good land, did some yeares since begin to goe about it all over the land, and that with very good success; so as I know Gentlemen, who turned into firm land three or four hundred acres of Bog, and in case that this detestable rebellion had not come between, in a few yeares there would scarce have been left one acre of Bog, of what was in the lands

lands and possession of the English; except onely those places whose situation is altogether repugnant to draining, because that the water either through the hollowness of the place, as in the inclosed valleyes and deep dales between the hils and mountaines, or through the too great evenness & plainness of the ground, not inclining to any one part more than another, cannot be drawn away at all; and except such parcels as needs must have been kept for turf, and Red bogs who are very unfit for draining, for the trenches being made, the earth on both sides will sink into them again, and choak them up.

Sect. 4. *Profit reaped by the draining of Bogs.*

This draining of the Bogs as it tended not a little to the generall good of the whole land, by amending of the Air (wherof we shall have occasion to say more in some other place) and otherwise, so it brought great profit unto the Authors, for the land or soil of the Bogs being in most places good of it self, and there besides greatly enriched by the lying still and the soaking in of the water for the space of so many yeares, the same being dryed through the draining of the water, is found to be very fit either to have corn sowed upon, or to be turned into pastures; making also excellent meadowes: so as those, who have tried that, doe affirm, that the meadowes gained out of the Bogs might be compared with the very best of their other meadowes, yea many times surpassed the same in goodness: & this took place chiefly in the Grassie bogs or Shaking bogs, whose fruitfulness in this particular, & in the plentifull production of very sweet and

deep grass, after the draining off the water, was very wonderfull; and all this without any other trouble or costs bestowed upon these Meddows, than that they dunged them the first year, to warm them the better, and the sooner, and more thoroughly to amend the remainders of that coldness and rawness contracted through that long and constant continuance of the water upon them; after which once dunging, afterwards for a good many yeares nothing else needed to be done to them.

Sect. 5. *The manner of draining the Bogs.*

This draining of the Bogs was performed in the manner following. On that side of the Bog, where the ground was somewhat sloaping, they cut a broad deep Trench, beginning it in the firm ground, and advancing it unto the entrance of the Bog, into which Trench the water would sink out of the next parts of the Bog in great abundance, and that many times so suddenly, as if a great sluce had been opened, so as the labourers were constrained to run out of it with all speed, lest the force of the water should overwhelm and carry them away. Some part of the Bog being by this meanes grown reasonable dry within a short space of time, opportunity thereby was ministred to advance the Trench further into the Bog; and so by little and little they went on with it untill at last they carryed it quite across the Bog, from the one side to the other: And having done this, they made a great many lesse Trenches out of the main one, on both sides of the same; the which bringing the water from all the parts of the Bog unto the main Trench, did

in a little while empty the Bog of all its superfluous moysture, and turn it into good and firm ground.

Sect 6. *Observation about the falling and setling of the Bogs at their draining.*

The Green or Grassie-bogs, the which having all their moysture and water inwardly, are thereby wonderfully swelled and puft up, use by means of this draining to fall very much, and to grow a great deal lower, and that not only apparently, so that the ground which before the drayning was five or six feet high, commeth at last to be not above two or three feet high; but sometimes also suddenly, and within the space of four and twenty, or eight and forty houres; whereas ordinarily that useth to come to pass in greater length of time; and although the ground by falling in this manner, may seem thereby to have been subject to return to its former boggy condition on the least occasion; nevertheless there was no danger of that, as long as the Trenches were kept open, and thereby the passage kept free for the water, which from time to time would from all parts of the drayned Bog be sinking into them. This water, as at the first draining, so ever after, was by the main Trench carryed unto some Brook, River, or Lough, according as one or other of them was next at hand, and the situation of the land would give opportunity.

CHAP. XV.

Of the Woods in Ireland.

Sect. 1. *Woods in Ireland are reckoned among the barren lands, and the reason thereof.*

AMongst the barren parts of Ireland the Woods must also be counted, according to the usuall division of the lands of that Kingdom, whereby reckoning for fruitfull onely the Meddows, Arable-grounds, and Pastures, they count all the rest for barren, comprehending them under these three generall heads, Bogs, Barren-Mountains, and Woods. Which division as it is in the mouth of all them that have any insight into the matters of that Land, and do, or have lived there, so it is further confirmed by a number of Writings and Monuments, both of ancienter times, and late ones, in the which it is very common and familiar: As for instance may appear by those several Acts, which since this last Rebellion of the Irish have been made by the Parliament of England in the behalf of the Adventurers who have layd out their monyes for the reconquering of the revolted parts of that Kingdom.

For although the land which the Woods do take up, is in it self very good in most places, and apt to bear both Corn and Grass plentifully (whereof more shall be sayd by and by) yet as long as the Woods remain standing, it is unfit not only to be made either Arable or Meddow (as in it self is most evident) but even for Pasture, by reason of the over much moysture, the roots of the trees staying the rain-water, so as it hath

not

not the liberty to pass away readily, and their stems and branches hindering the free access of the Wind and Sun, whereunto cometh in many parts the grounds own waterinesse, occasioned by Springs there arising, and by its situation apt for the gathering and keeping of water, which maketh them for the most part so muddy and boggy, that cattle cannot conveniently feed in them.

Sect. 2. *Woods much diminished in Ireland since the first comming in of the English.*

In antient times, and as long as the land was in the full possession of the Irish themselves, all Ireland was very full of Woods on every side, as evidently appeareth by the writings of *Giraldus Cambrensis*, who came into Ireland upon the first Conquest, in the company of Henry the second, King of England, in the year of our Saviour a eleven hundred seventy and one. But the English having setled themselves in the land, did by degrees greatly diminish the Woods in all the places where they were masters, partly to deprive the Theeves and Rogues, who used to lurk in the Woods in great numbers, of their refuge and starting-holes, and partly to gain the greater scope of profitable lands. For the trees being cut down, the roots stubbed up, and the land used and tilled according to exigency, the Woods in most part of Ireland may be reduced not only to very good Pastures, but also to excellent Arable and Meddow.

Through these two causes it is come to pass in the space of many years, yea of some Ages, that a great part of the Woods, which the English

found in Ireland at their first arrival there, are quite destroyed, so as nothing at all remaineth of them at this time.

Sect. 3. *Diminishing of the Woods during the last Peace.*

And even since the subduing of the last great Rebellion of the Irish before this, under the conduct of the Earl of Tirone (overthrown in the last yeares of Queen Elizabeth by her Viceroy Sir Charles Blunt, Lord Mountjoy, and afterwards Earl of Devonshire) and during this last Peace of about forty years (the longest that Ireland ever enjoyed, both before and since the comming in of the English) the remaining Woods have very much been diminished, and in sundry places quite destroyed, partly for the reason last mentioned, and partly for the wood and timber it self, not for the ordinary uses of building and firing (the which ever having been a-foot, are not very considerable in regard of what now we speak of) but to make merchandise of, and for the making of Charcoal for the Iron-works. As for the first, I have not heard that great timber hath ever been used to be sent out of Ireland in any great quantity, nor in any ordinary way of Traffick; but onely Pipe-staves, and the like, of which good store hath been used to be made, and sent out of the Land, even in former times, but never in that vast quantity, nor so constantly as of late yeare, and during the last Peace, wherein it was grown one of the ordinary merchandable commodities of the country, so as a mighty Trade was driven in them, and whole ship-loads sent into forrein countries yearly;

yearly; which as it brought great profit to the proprietaries, so the felling of so many thousands of trees every year as were employed that way, did make a great destruction of the Woods in tract of time. As for the Charcoal, it is incredible what quantity thereof is consumed by one Iron-work in a year: and whereas there was never an Iron-work in Ireland before, there hath been a very great number of them erected since the last Peace in sundry parts of every Province; the which to furnish constantly with Charcoales, it was necessary from time to time to fell an infinite number of trees, all the lopings and windfals being not sufficient for it in the least manner.

Sect. 4. *Great part of Ireland very bare of Woods at this time.*

Through the aforesayd causes Ireland hath been made so bare of Woods in many parts, that the inhabitants do not onely want wood for firing (being therefore constrained to make shift with turf, or sea-coal, where they are not too far from the sea) but even timber for building, so as they are necessitated to fetch it a good way off, to their great charges, especially in places where it must be brought by land: And in some parts you may travell whole dayes long without seeing any woods or trees except a few about Gentlemens houses; as namely from Dublin, and from places that are some miles further to the South of it, to Tredagh, Dundalk, the Nurie, and as far as Dremore; in which whole extent of land, being above threescore miles, one doth not come near any woods worth the speak-

ſpeaking of, and in ſome parts thereof you ſhall not ſee ſo much as one tree in many miles. For the great Woods which the Maps dor repreſent unto us upon the Mountains between Dundalk and the Nury, are quite vaniſhed, there being nothing left of them theſe many years ſince, but one only tree, ſtanding cloſe by the highway, at the very top of one of the Mountains, ſo as it may be ſeen a great way off, and therefore ſerveth travellers for a mark.

Sect. 5. *Many great Woods ſtill left in Ireland.*

Yet notwithſtanding the great deſtruction of the Woods in Ireland, occaſioned by the aforeſayd cauſes, there are ſtill ſundry great Woods remaining, and that not onely in the other Provinces, but even in Leinſter it ſelf. For the County of Wickloe, Kings-county, and Queens-county, all three in that Province, are throughout full of Woods, ſome whereof are many miles long and broad. And part of the Counties of Wexford and Carloe are likewiſe greatly furniſhed with them.

In Ulſter there be great Forreſts in the County of Donegall, and in the North-part of Tirone, in the Country called Glankankin. Alſo in the County of Fermanagh, along Lough-Earne; in the County of Antrim; and in the North-part of the County of Down; in the two Countries called Killulra and Kilwarlin; beſides ſeverall other leſſer Woods in ſundry parts of that Province. But the County of Louth, and far the greateſt part of the Countys

of

of Down, Armagh, Monaghan, and Cavan (all in the same Province of Ulster) are almost every where bare, not onely of Woods, but of all sorts of Trees, even in places which in the beginning of this present Age, in the War with Tirone, were encumbred with great and thick Forrests.

In Munster where the English, especially the Earl of Cork, have made great havock of the Woods during the last Peace, there be still sundry great Forests remaining in the Counties of Kerry, and of Tipperary; and even in the County of Cork, where the greatest destruction therof hath bin made, some great Woods are yet remaining, there being also store of scattered Woods both in that County, and all the Province over.

Connaught is well stored with trees in most parts, but hath very few Forests or great Woods, except in the Counties of Maio and Sligo.

CHAP. XVI.

Of the Mines in Ireland, and in particular of the Iron-mines.

Sect. 1. *All the Mines in Ireland discovered by the New-English.*

THe Old-English in Ireland, that is, those who are come in from the time of the first Conquest, untill the beginning of Queen *Elizabeths* Reign, have been so plagued with Wars

Wars from time to time, one while intestine among themselves, and another while with the Irish, that they could scarce ever find the opportunity of seeking for Mines, and searching out the Metals hidden in the bowels of the Earth. And the Irish themselves, as being one of the most barbarous Nations of the whole earth, have at all times been so far from seeking out any, that even in these last years, and since the English have begun to discover some, none of them all, great nor small, at any time hath applyed himself to that business, or in the least manner furthered it.

So that all the Mines which to this day are found out in Ireland, have been discovered (at least as for to make any use of them) by the New-English, that is, such as are come in during, and since the reign of Queen *Elizabeth*. Severall whereof having begun to give their minds to it during the last Peace, have in a few years found out a great many Iron-Mines in sundry parts of the Kingdom, and also some of Lead and Silver; which greatly confirmeth the opinion of many knowing persons, who hold that the Mountains of Ireland are full of Metals, and that if the same industry and diligence had been used by the inhabitants of that Country in former Ages, as there hath been since the beginning of the present, many more Mines might have been discovered, not only of the same Minerals as have been found out hitherto, but of others also, and perhaps even of Gold it self.

Sect.

Sect. 2. *Grounds to beleeve that there are Gold-mines in Ireland.*

I beleeve many will think it very unlikely, that there ſhould be any Gold-mines in Ireland; but a credible perſon hath given me to underſtand, that one of his acquaintance had ſeverall times aſſured him, that out of a certain rivelet in the County of nether-Tirone, called Miola (the which riſing in the Mountains Slew-galen, and paſſing by the village Maharry, falleth into the North-weſt corner of Lough-Neaugh, cloſe by the place where the River Band commeth out of it) hee had gathered about one dram of pure gold; concluding thereby, that in the aforelaid Mountains rich Gold-mines doe lye hidden.

For it is an ordinary thing for rivers, which take their originall in gold-bearing mountains, to carry Gold mixt with their ſand; the which may bee confirmed by many inſtances, and to ſay nothing of ſeverall Rivers of that kind, mentioned by *Staabo*, *Pliny*, & other old Geographers and Hiſtorians, nor of Pactolus and Hermus in Lydia, and Tagus in Spain, whereof all the old Poets are full; it is certain, that in our very times ſeverall rivers in Germanie, as the Elbe, Schwarts, Sala, and others, doe carrie gold, and have it mixed with their ſands; out of the which by the induſtry of man it is collected.

Sect. 3. *Three ſorts of Iron-mines in Ireland: and firſt of the firſt ſort, Bog-mine.*

But to let alone uncertain conjectures, and to content our ſelves with the Mines that are already diſcovered, we will in order ſpeak of them,

them, and begin with the Iron-mines. Of them there are three sorts in Ireland, for in some places the Oar of the Iron is drawn out of Moores and Bogs, in others it is hewen out of Rocks, and in others it is digged out of Mountains: of which three sorts the first is called Bog-mine, the other Rock-mine, and the third with severall names White-mine, Pin-mine, and Shel-mine.

The first sort, as wee have said, and as the name it self doth shew, is found in low and boggie places, out of the which it is raised with very little charge, as lying not deep at all, commonly on the superficies of the earth, and about a foot in thickness. This Oar is very rich of metall, and that very good and tough, nevertheless in the melting it must be mingled with some of the Mine or Oar of some of the other sorts: for else it is too harsh, and keeping the furnace too hot, it melteth too suddenly, and stoppeth the mouth of the furnace, or, to use the workmens own expression choaketh the furnace. Whilest this Oar is new, it is of a yellowish colour, and the substance of it somewhat like unto clay, but if you let it lye any long time in the open air, it groweth not only very dry, as the clay useth to doe, but moldereth and dissolveth of it self, and falleth quite to dust or sand, and that of a blackish or black-brown colour.

Sect. 4. *Of the second sort of Iron-mine, called Rock-mine.*

The second sort, that which is taken out of Rocks, being a hard and meer stony substance, of a dark and rustie colour, doth not lye scattered in severall places, but is a piece of the very rock, of the which it is hewen: which Rock being covered

covered over with earth, is within equallie every where of the ſame ſubſtance; ſo as the whole Rock, and every parcell thereof, is Oar of Iron. This Mine, as well as the former, is raiſed with little trouble, for the Iron-rock being full of joints, is with pick-axes eaſily divided and broken into pieces of what bigneſs one will: which by reaſon of the ſame joints, whereof they are full every where, may eaſily be broke into other leſſer pieces; as that is neceſſary, before they be put into the furnace.

This Mine or Oar is not altogether ſo rich as the Bog-mine, and yeeldeth very brittle Iron, hardly fit for any thing elſe, but to make plow-ſhares of it (from whence the name of colt-ſhare Iron is given unto it) and therefore is ſeldom melted alone, but mixed with the firſt or the third ſort.

Of this kind hitherto there hath but two Mines been diſcovered in Ireland, the one in Munſter, neer the town of Tallo, by the Earl of Cork his Iron works; the other in Leinſter, in Kings county, in a place called Deſert land, belonging to one Serjeant Major Piggot, which rock is of ſo great a compaſs, that before this rebellion it furniſhed divers great Iron-works, and could have furniſhed many more, without any notable diminution; ſeeing the deepeſt pits that had been yet made in it, were not above two yards deep. The land, under which this rock lyeth, is very good and fruitfull, as much as any other land thereabouts, the mold being generallie two feet and two and a half, and in many places three feet deep.

Sect.

Sect. 5. *Of the third sort of Iron-mine.*

The third sort of Iron-mine is digged out of the mountains, in severall parts of the Kingdome; in Vlster, in the County of Fermanagh, upon Lough Earne; in the County of Cavan, in a place called Douballie, in a drie mountain; and in the County of Nether-Tirone, by the side of the rivelet Lishan, not farre from Lough Neaugh; at the foot of the mountains Slew-galen mentioned by us upon an other occasion, in the beginning at this Chapter: in Leinster, in Kings-countie, hard by Mountmelick; and in Queens-countie, two miles from Mountrath; in Connaught; in Tomound or the County of Clare, six miles from Limmerick; in the County of Roscomen, by the side of Lough Allen; and in the County of Letrim, on the East-side of the said Lough, where the mountains are so full of this metall, that thereof it hath got in Irish the name of *Slew Neren*, that is, Mountains of Iron: and in the Province of Munster also in sundry places.

This sort is of a whitish or gray colour, like that of ashes; and one needs not take much paine for to find it out, for the mountaines which doe contain it within themselves, doe commonly shew it of their own accord, so as one may see the veins thereof at the very outside in the sides of the mountains, beeing not very broad, but of great length, and commonly divers in one place, five or six ridges the one above the other, with ridges of earth between them.

These

These Veins or Ridges are vulgarly called Pins, from whence the Mine hath the name of Pin-mine; being also called White-mine, because of its whitish colour; and Shel-mine, for the following reason: for this stuff or Oar being neither loose or soft as earth or clay, neither firm and hard as stone, is of a middle substance between both, somewhat like unto Slate, composed of shels or scales, the which do lye one upon another, and may be separated and taken asunder very easily, without any great force or trouble. This stuff is digged out of the ground in lumps of the bigness of a mans head, bigger, or less, according as the Vein affordeth opportunitie. Within every one of these lumps, when the Mine is very rich and of the best sort (for all the Oar of this kind is not of equall goodness, some yeelding more and better Iron than other) lyeth a small Kernell, which hath the name of Hony-comb given to it, because it is full of little holes, in the same manner as that substance whereof it borroweth its appellation.

The Iron comming of this Oar is not brittle, as that of the Rock-mine, but tough, and in many places as good as any Spanish Iron.

Sect. 6. *Iron-works erected by the English.*

The English having discovered these Mines, endeavoured to improve the same, & to make profit of them, and consequently severall Iron-works were erected by them in sundry pats of the Land, as namely by the Earl of Cork in divers places in Munster; by Sr *Charles Coot* in the Counties of Roscomen and Letrim, in Connaught, and in Leinster by Mountrath, in Queens-county; by

the Earl of London-derry at Ballonakill, in the sayd County; by the Lord Chancelour Sir *Adam Loftus*, Vicount of Ely, at Mountmelik, in Kings-county; by Sir *John Dunbar* in Fermanagh, in Ulster; and another in the same County, by the side of Lough-Earne, by Sir *Leonard Blevarhasset*; in the County of Tomond, in Connaught, by some London-Merchants; besides some other Works in other places, whose first Erectors have not come to my knowledge.

In imitation of these have also been erected divers Iron-works in sundry parts of the sea-coast of Ulster and Munster, by persons, who having no Mines upon or near their own Lands, had the Oare brought unto them by sea out of England; the which they found better cheap than if they had caused it to be fetched by land from some of the Mines within the land. And all this by English, whose industry herein the Irish have been so far from imitating, as since the beginning of this Rebellion they have broke down and quite demolished almost all the fore-mentioned Iron-works, as well those of the one as of the other sort.

CHAP.

CHAP. XVII.

Of the Iron-works, their fashion, charges of erecting and maintaining them, and profit coming of them: With an exact description of the manner of melting the Iron in them.

Sect. 1. *The fashion of the Iron-works.*

THe fashion of the Iron-works, of whose erection we have spoke in the end of the foregoing Chapter, is such as followeth. At the end of a great Barn standeth a huge Furnace, being of the height of a pike and a half, or more, and four-square in figure, but after the manner of a Mault-kiln, that is, narrow below, and by degrees growing wider towards the top, so as the compass of the mouth or the top is of many fathoms. This mouth is not covered, but open all over; so that the flame, when the furnace is kindled, rising through the same without any hindrance, may be seen a great way off in the night, and in the midst of the darkness maketh a terrible shew to travellers, who do not know what it is.

These Ovens are not kindled with wood, nor with sea-coal, but meerly with char-coal, whereof therefore they consume a huge quantity: For the Furnace being once kindled, is never suffered to go out, but is continually kept a burning from the one end of the year to the other: And the proportion of the coals

to the Oare is very great: For the Mine would not melt without an exceeding hot fire; the which that it may be the more quick and violent, it is continually blown day and night without ceasing by two vast pair of bellows, the which resting upon main peeces of timber, and with their pipes placed into one of the sides of the Furnace, are perpetually kept in action by the meanes of a great wheel, which being driven about by a little brook or water-course, maketh them rise and fall by turns, so that whilst the one pair of bellows doth swell and fill it self with wind, the other doth blow the same forth into the Furnace.

Sect. 2. *Of the lesser Iron-works, called Bloomeries: Of the Hammer-works: And of the Casting works.*

There is another and lesser sort of Iron-works, much different from the former: For instead of a Furnace they use a Hearth therein, altogether of the fashion of a Smiths Hearth, whereon the Oare being layd in a great heap, it is covered over with abundance of Charcoal, the which being kindled, is continually blown by Bellows that are moved by Wheeles and Water-courses, in the same manner as in the other Works.

These Works, commonly called Bloomeries, are in use, or were so before this Rebellion in sundry places of the North-parts of Ulster.

Besides these two sorts of Works, where the Iron-mine is melted, there is a third sort, where

where the Iron after the first melting is hammered out into Bars, of which we shall have occasion to speak more in the latter end of this present Chapter.

There were also in some parts of Ireland yet another kind of Iron-works, differing from all the former, where the Iron was cast into Ordnance, Pots, small round Furnaces, and other things; of which Works Mr *Christopher Wandsworth*, Master of the Rolls of Ireland, and in his latter dayes Lord Deputy of the same Kingdom under the Earl of Strafford, then Lord Lieutenant thereof, had one upon his lands by Idough in the County of Carloe; whereof we cannot give the Reader any particulars, because we have not yet been informed thereof.

Sect. 3. *Conveniencies requisite to the erecting of an Iron-work.*

In the erecting of these Works men seek to make them as near to the Mine as may be, to get the more profit by them: for the greater the distance is, the greater are the charges in having the Oare brought from the Mine to the Furnace, especially where all must be carried by land, the which doth fall out so in far the most places.

But many times one is necessitated to make the Works a good way further from the Mine, than otherwise one would, because of the Water-courses, the which being of very great consequence in the well-settling of a Work, and absolutely necessary (the wheels being all moved by water) those places must be made choice

of, where one may have the conveniency of Water-courses. And beside all this, regard must be had to the nearness of the Woods, partly by reason of the Timber, a great deal whereof is necessary for the erecting of one of these Works, and chiefly for the Charcoales sake, of which a vast quantity continually is requisite, as before we have shewed.

Sect. 4. *The charges of erecting, and maintaining an Iron-work.*

It is to be observed, that although there be Wood enough upon ones land, and that not very far from the Mine, together with the conveniences of Water-courses, so as the water needeth not to be brought from very far off, nevertheless the charge is very great, both of erecting and stocking one of the Iron-works, and of maintaining it and keeping it afoot, and that by reason of the great number of Workmen and Labourers of severall sorts, which thereunto is requisite; a list of whose names and offices here followeth: Wood-cutters, who fell the timber; Sawyers, to saw the timber; Carpenters, Smiths, Masons, and Bellow-makers, to erect the Iron-works, with all the appurtenances thereof, and to repair them from time to time; Water-leaders, or Water-course-keepers, to steer the Water-courses, and to look to them constantly; Basket-makers, to make baskets for to carry the Oare, and other materials; Boat-men, and Boat-wrights to make the Boats, and to go in them; Diggers, who work in the Mine, and dig the same; Carriers, who carry the Oare from the Mine; Colliers,

who

who make the Char-coal; corders, who bring the Char-coal to the work; fillers, whose work it is from time to time to put the Mine and the coales into the furnace; keepers of the furnace; who look to the main work, rake out the ashes and cinders, and let out the molten metall at convenient times; finers, who look to the works where the Iron is hammered; hammerers, whose work it is to see the Iron hammered out: besides severall other labourers, who having no particular task, must help to put their hand to every thing: of all which sorts of men Sir *Charles Coot* the elder, that zealous and famous Warriour in this present warre against the Irish Rebells (wherein having done many memorable exploits, he lost his life in the first year thereof) did continually keep at work some five-and-twenty or six-and-twenty hundred, at his Iron-works, being three in number. Wherby may easily be gathered the greatness of the expences in erecting & maintaining of Iron-works: and for all this the owners thereof did greatly gain thereby, ordinarily no less than forty in the hundred *per annum*.

Sect. 5. *Of the profit of the Iron-works instanced in those of Sir* Charles Coot *by Mountrath*

To speak somewhat more particularlie both of the charges and the profits of these Iron-works, we shal instance the matter in one of the works of the said Sr *Charles Coot*, namely that which he had in the Lordship of Mountrath, in Queens-county. At that work the Tun (that is twenty hundred weight) of Rock-mine at the furnace head came

in all to ſtand in five ſhillings ſix pence ſterling, and the Tun of White-mine, which hee had brought him from a place two miles further off in ſeven ſhillings. Theſe two were mixed in that proportion, that to one part of Rock-mine were taken two parts of White-mine: for if more of the Rock-mine had bin taken, the Iron would not have bin ſo good, and too brittle; and being thus mixed, they yeelded one third part of Iron: that is to ſay, of two Tuns of White-mine, and one of Rock-mine, being mingled and melted together, they had one Tun of good Iron, ſuch as is called Merchants-Iron, being not of the firſt, but ſecond melting, and hammered out into barres, and conſequently fit for all kinds of uſe.

This Iron he ſent down the river Oure (by others called the Nure) to Roſſe and Waterford in that kind of Iriſh boates which are called Cots in that countrie, being made of one piece of timber: which kind of ill-favoured boats (mentioned alſo by us above) are very common throughout all Ireland, both for to paſs rivers in, and to carry goods from one place to another; and not only upon ſhallow waters, ſuch as the aforenamed River is in the greateſt part of its courſe, but even upon the great Rivers and Loughs.

At Waterford the Iron was put aboard of ſhips going for London, where it was ſold for ſixteen, otherwhiles for ſeventeen pounds ſterling, and ſometimes for ſeventeen and a half; whereas it did not ſtand Sir *Charles Coot* in more than betwixt tenne and eleven pounds ſterling, all charges reckoned, as well of digging, melting, fining, as of carrying, boat-hire, and freight, even

the

the Customs also comprehended in it.

Sect. 6. *Some other particulars about the same subiect, of the profit of the Iron-workes.*

In most of the other places did a Tun of the Iron-mine or Oar come to stand in five, five and a half, and six shillings sterling at the furnace head; and it was an ordinary thing, as well where they used White-wine, as where they mixed Rock-mine with it, to have a Tun of good Iron out of three tuns of Oar: in some places, where the Mine was richer, they would have a Tun of Iron out of only two Tuns and a half of Oar. Nevertheless few of them gained more or as much as Sir *Charles Coot*, because they had not the same conveniencie of transportation: And he himselfe did not gain so much by his Iron works in Connaught, as by that neer Mountrath, although the Mines there afforded a richer Oar, and that the Tun thereof did cost him but three shillings at the furnace, because that Lough-Allen, whereunto the same Mines and Works are contiguous, gave him the opportunitie of carrying the Oar by water from the Mine unto the Work, and that in boates of forty tuns.

The Earl of Cork whose Iron-works being seated in Munster, afforded unto him very good opportunitie of sending his Iron out of the land by shipping, did in this particular surpass all others, so as he hath gained great treasures thereby: and knowing persons, who have had a particular insight into his affaires, doe assure me, that he hath profited above one hundred thousand pounds clear gain by his said Iron-works.

Sect.

Sect. 7. *The manner of melting the Iron-oar.*

The manner of melting the Iron, usuall in Ireland, is thus. The furnace is not filled to the top, but some space is left emptie; and to put new stuff into it they doe not stay untill the former be quite consumed, but only untill it be somewhat descended, and then they cast into it some charges or basketfuls of Coales, and at the top of them the same quantity of Mine: and thus they doe from time to time, so as the furnace is in a manner alwaies in one and the same estate; where is to be observed, that in most furnaces they adde unto the Oar and Coales some quantity of Iron-cinders, and in others of Lime-stone, whereby the melting of the Iron is greatly furthered, and the furnace made to work more mildly.

Within the barn, at the bottome of the furnace, stand constantly two men, one of each side, the which with long iron hooks, through holes left for the purpose, doe every quarter of an hour draw out the unburnt coales, ashes, and cinders; which cinders are great lumps of a firm substance, but brittle, of a blackish colour, shining, but not transparent; being nothing else but the remainder of the Iron-oar, after that the Iron which was contained in it, is melted out on't.

The Iron it self descendeth to the lowest part of the furnace, called the Hearth; the which being filled, (so that, if one stayed longer, the Iron would begin to swim over through the aforesaid holes) they unstop the Hearth, and open the mouth thereof (or the Timpas the Artsmen call it) taking away a little door, of fashion like unto that of a bakers oven, wherewith the same

was

was shut up very close. The floor of the barn hath a mold of sand upon it, where in, before they open the furnace, a furrow is made, of sufficient breadth and depth, through the whole length of the barn, from the bottom of the furnace until the barns door: into which furrow, as soon as the furnace is opened, the molten Iron runneth very suddenly and forcibly, being to look on like unto a stream or current of fire. It remaineth a long time hot, but doth presently loose its liquidness and redness, turning into a hard and stiff mass, which masses are called Sowes by the workmen.

Sect. 8. *Of the different Bigness of the Iron Sowes.*

These Masses or Sowes of Iron are not all waies of one and the same weight and bigness, but there is them of all sizes, from one hundred weight untill thirtie hundred: which difference doth chiefly depend on the different bigness of the furnace and hearth, and partly on the will and discretion of the workmaster or founder, and according as he either stayeth untill the hearth be full, or letteth out the Iron sooner; but ordinarily they doe not use to cast, or to open the hearth, under less than twelve houres, nor to stay much longer than four and twenty.

And here is to be observed, that even in furnaces of the same bigness, yea in the self-same furnace, the same quantity of Iron is not alwaies cast in the same space of time: but that varieth both according to the nature of the Ore, and according to the different seasons of the year. For within the same compasse of time you shall cast a greater quantitie of Iron out of

a rich Mine or Oar, than out of a lean one; and in the summer time, when the Coales come in dry and fresh, than in the winter.

Sect. 9. *Of the refining of the Sow-Iron, and the hammering it into Barres.*

The Sowes are with teams of Oxen drawn to the Hammer-works, where being put into the fire again, they melt them into the finerie, the Finer turning the melted stuff to and fro, till it come to be a solid body, then he carrieth it under the hammer, where it is hammered out into such flat narrow and thin bars, as are to be seen every where: the hammers being huge big ones, and never ceasing from knocking day nor night, as being kept at work by the means of certain wheels, turned about by Water-courses in the same manner as the wheels of the Bellows.

By means of this second melting, and of that mighty hammering, the Iron is freed from a mighty deal of drosse and dregs which it kept sticking to it, thorough its whole substance, in the first melting; and so of impure called Sow-Iron, becometh to be usefull, such as is accustomed to be delivered unto Merchants, being therefore called Merchants-Iron; one Tun whereof is usually had out of a Tun and a half of Sow-Iron; but if that be of the best sort, and cast of the best Oare, two hundred pounds lesse of it will yeeld the aforesayd quantity of a Tun of Merchants-Iron.

CHAP.

CHAP. XVIII.

Of the Mines of Silver and Lead in Ireland: and occasionally of the pestiferous Damps and Vapours within the Earth.

Sect. 1. *Of the severall Mines of Silver and Lead, and in particular that of Tipperary.*

MInes of Lead and Silver in Ireland have to this day been found out, three in number; one in Ulster, in the County of Antrim, very rich, forasmuch as with every thirty pounds of Lead it yeeldeth a pound of pure Silver; another in Connaught, upon the very Harbour-mouth of Sligo, in a little Demy-Iland commonly called Conny-Iland; and a third in Munster. The first two having been discovered but a few years before this present Rebellion, were through several impediments never taken in hand yet; wherefore we shall speak only of the third.

This Mine standeth in the County of Tipperary, in the Barony of Upper-Ormond, in the Parish of Kilmore, upon the Lands of one *John Mac-Dermot O-kennedy*, not far from the Castle of Downallie, twelve miles from Limmerick, and threescore from Dublin. The land where the Mine is, is mountainous and barren; but the bottoms, and the lands adjoyning, are very good for Pasture, and partly Arable; of each whereof the Miners had part, to the value of twenty pounds sterling *per annum*,

mine every one. It was found out not above forty years agoe, but understood at the first onely as a Lead-mine, and accordingly given notice of to *Donogh* Earl of Thomond, then Lord President of Munster, who made use of some of the Lead for to cover the house which he then was building at Bunrattie: But afterwards it hath been found, that with the Lead of this Mine there was mixed some Silver.

Sect. 2. *The manner of digging this Mine: the nature of the Oare, and what proportions of Silver and Lead it yeelds.*

The Veins of this Mine did commonly rise within three or four spits of the superficies, and they digged deeper as those Veines went, digging open pits very far into the ground, many fathoms deep, yea Castle-deep; the pits not being steep, but of that fashion as people might go in and out with Wheel-barrows, being the onely way used by them for to carry out the Mine or Oare. The water did seldom much offend them; for when either by the falling of much rain, or by the discovering of some Spring or Water-source, they found themselves annoyed by it, they did by Conduits carry it away to a brook adjoyning, the Mountain being so situate, as that might be done easily.

This Mine yeelds two different sorts of Oare; of which the one, and that the most in quantitie, is of a reddish colour, hard, and glistering; the other is like a Marle, somthing blewish,

blewish, and more soft than the rod; and this was counted the best, producing most Silver, whereas the other, or glittering sort, was very barren, and went most away into litteridge or dross.

The Oar yeelded one with another three pound weight of Silver out of each Tun, but a great quantity of Lead, so as that was counted the best profit to the Farmer.

Besides the Lead and Silver the Mine produced also some Quicksilver, but not any Alome, Vitriol, or Antimony, that I could hear of.

Sect. 3. *Profits of this Mine. It hath been destroyed by the Irish Rebels.*

The silver of this Mine was very fine, so as the Farmers sold it at Dublin for five shillings two pence sterling the ounce; as for the Lead, that they sold on the place for eleven pounds sterling the Tun, and for twelve pounds at the city of Limmerick. The King had the first part of the silver for his share, and the tenth part of the Lead, the rest remaining to the farmers, whose clear profit was estimated to be worth two thousand pounds sterling yearly.

All the Mils, Melting-houses, Refining-houses, and other necessary work-houses, stood within one quarter of a mile at the furthest from the place where the Mine was digged, every one of them having been very conveniently and sufficiently built and accommodated by the Officers and substitutes of Sir *William Russell*, Sir *Basil Brook*, and Sir *George Hamilton*, which three persons successively had this Mine in farm from the King, but in the beginning of this present

lent Rebellion all this hath been destroyed by the Irish under the conduct of Hugh O-kennedy, brother of Iohn Mac-Dermot O-kennedy, on whose lands the Mine was situated: which Rebels not content to lay waste the Mine, and to demolish all the works thereunto belonging, did accompany this their barbarousnes with bloody cruelty against the poor workmen, such as were imployed about the melting and refining of the Oar, and in all offices thereunto belonging; the which some of them being English, and the rest Dutch (because the Irish having no skill at all in any of those things, had never been imployed in this Mine otherwise than to digg it, and to doe other labours) were all put to the sword by them, except a very few, who by flight escaped their hands.

Sect. 4. *This Mine free from deadly vapours, the which otherwise in Ireland are bred within the Earth, as well as in other Countries, as is instanced in a very remarkable History.*

I have not heard that any of the Miners hath been stifled in this Mine, a thing ordinary enough in other countries: the reason whereof I conceive to be, because the work was done in wide and open pits, wherein the like noxious vapours can neither be so easily engendred, and when they arise find a free passage into the open air, to the contrary of those close and narrow vaults usuall in the most part of other Mines.

For else that the Earth of Ireland is subject, as well as that of other countries, to breed dangerous damps within her self, is undoubted, as evidently it appeared in the year sixteen hundred

thirty

thirty seven, by this following accident.

A Maulter living in the suburbs of Dublin in St Francis-street caused a Well to be digged three yards deep, which yeelding but little water, and that not very sweet nor clear, resolved to have it made deeper; and injoyned a servant of his, to work at it at spare times, which he doing, and having digged a yard and half lower, the water of it begun the 24 of August to bubble up in a strange manner, making great noise; which having continued two dayes, without any notable increase, hardly comming half-way the knees; he went down again into the Well, to digge there according to his custome. But having wrought but a little while, and being taken with a sudden giddinesse in his head, and faintnesse at his heart, made hast to get out, and being revived, returned to fetch away his spade and other instruments; but comming to the bottom he fell into a deadly sown, which being seen by those that were present, one of them went down to help him up; unto whom the same accident happened. All the spectators being greatly astonished, and their tumult having drawn-on a great concourse of people, the place were the Well was being an open yard, looking into the main street; a certaine man, newly come to town, and casually passing by that way, not affrighted by the example of those two, had the courage to goe down to fetch the former out, but with as ill success as they themselves. The wonder and amazement being hereby increased among the people, there was nevertheless a Butcher (a bold robustuous man) who having drunk somewhat liberally, would notwithstanding these sad accidents goe in, which at the first not being

suffered, and he continuing in his resolution, was at last permitted on condition that he let a strong cord be tyed about his waist to pull him out, if he found himself ill; the which to signifie he was to hold up his right hand. But being come to the bottome, and suddenly taken with a deadly faintness, that he had neither time nor power to give the appointed sign, falling from the ladder; and being haled out with all possible speed, found to be in a deep trance, but with perfect signes of life: wherefore being carried to his own house, put into his bed, and care taken of him, it was nevertheless 24 houres before he came to himself.

The dead bodies being drawn out of the Well it was filled with earth by order of the Magistrat of the said City.

Sect. 5. *Relation of an accident like the former happened at London.*

The like accidents have at severall times been seen in other Countries, whereof wee could alege many instances, but passing by all other we shall make mention of one lately befaln here at London. Without Aldesgate, there is a little court called Carpenters-yard, in the midst of which there stood a Pump; the water whereof not being good for to dress meat, was used by the neighbours only for the washing and cleaning of their houses, and the like. But in length of time being grown so thick and muddy that no use could be made ont, it was resolved that the Well, whereout the Pump drew its water, should be made clean, to which purpose the Pump being taken down, in the latter end of July anno sixteen hundred fourtie four, a laborer was let down

with a cord into the Well, being little and narrow, to take out the mud by pailes full, which assoon as he came to the bottome presently fell stark dead. Those that had let him down, seeing this, and suspecting nothing else, but that a suddain faintnes had overcome him, let down another to see what he ayled, and to bring him out. But he sped no better than the first, which when the people perceived, no more went into the Well, untill three or four houres after, in which middle-space of time a great Iron pan or plate, heaped up with burning charcoal, had been let down into the Well; and severall times as the fire did slaken, renewed, that through the heat thereof that mortiferous vapour might bee overcome and disperst, the which accordingly fell out; so that the person afterwards went down to fetch away the dead bodies, got no hurt at all. A great covered or vaulted gutter, whereby the ordures of the streets are under ground conveyed into the City ditch, passeth under the yard where-in the said Well, (dammed up since this sad accident) did stand; so as it may bee probably beleeved that that deadly infection of the air within the same Well had partly been caused through the neerness of the same sewer.

CHAP. XIX.

Of the Free-stone, Marble, Flints, Slate, and Seacoles which are found in Ireland.

Sect. 1. *Of the Free-stone.*

HAving in the precedent Chapters treated of the Metals and Minerals, which are found in Ireland, we shall now go on to speak of severall other substances, raised out of the ground there, of a less noble nature, but nevertheless profitable and serving for severall good uses.

To begin with Free-stone; there is two sorts of it, the one being gray or ash-coloured, and the other blew; which both for the most part lying in the uppermost parts of the ground, covered over with very little earth, are raised with small labour and charge, whereas in most other countries it is as much labour to digge Free-stone as the metalls themselves. The blew Free-stone is not very abundant, and as little in request, as unfit for great buildings, it lying for the most part in small unshapely peeces; and when they are bigger commonly broke in the raising and hewing, partly through the unskilfullness of the workmen there, and chiefly because they are exceeding hard, and cannot well endure the Iron. The gray free-stone which is found very abundantly in most parts of the land is of a contrary nature; and may easily be cut out into stones of all bigness or fashion, wherefore also this sort hath been used by the English, to all the Churches, Castles, and Edifices, which since the Conquest have been builded by them; For the Irish

Irish themselves, never had the skill nor industry to art & any considerable buildings of Free-stone, Brick, or other the like materials, their dwellings being very poor and contemptible cottages. True it is, that the English at their first comming found several Maritime-townes in Ireland with stone-walls and houses, the Churches also, not onely in those, but in many other Towns being of the same. But built by strangers, who being come out of the Northern parts of Germany, and other neighbouring Countries, had setled themselves there, inhabiting severall parts of the Sea-coasts, some Ages before the English Conquest; which people called themselves Oastmans, or Easterlings; all those Countries of the which they were come being situated to the East of Ireland.

Sect. 2. *Certain evill properties of the Irish Free-stone.*

This sort of Gray Free-stone in Ireland hath a bad qualitie, that it draweth the moysture of the air continually to it, and so becommeth dank and wet both in and out-side, especially in times of much rain. To mend this inconvenience the English did wainscot those walls with oak or other boards, or line them with a thin cruft of brick.

Sect. 3. *Of the Marble.*

Besides the Free-stone, which is almost in every part of the land, there is Marble found in many places of severall sorts; one is red, straked with white and other colours, such as with a peculiar name is called Porphyre; other black, very curiously straked with white, and some all of one colour.

The firſt two ſorts are found but in ſmal quantity, eſpecially the ſecond. But the laſt is very abundant in ſome places, but moſt about Kilkenny, where not onely many houſes are built of the ſame, but whole ſtreets are paved with it.

Sect. 4. *Deſcription of the Marble-quarrie at Kilkenny.*

The Quarrie out of which they have their Marble at Kilkenney, is not above a quarter of a mile diſtant from the Town, and belongeth to no body in particular, lying in common for all the Townſmen, who at any time may fetch as much out of it, as ſeemeth good unto them, without paying any thing for it: It is in faſhion like unto Quarries of Free-ſtone, to wit, a wide open pit, whereout ſtones and pillars of great thickneſs and height may be digged. This Marble, whilſt it is rude, and as it cometh out of the ground, looketh grayiſh, but being poliſhed it geateth a fine blewiſh colour, drawing ſomwhat towards the black.

Sect. 5. *Of the Flint.*

Although Flints are not digged from under the ground, yet ſhall we give them a place next to the Free-ſtone and Marble, becauſe of the affinity which they have with them. They are found in every part of Ireland in great abundance near the ſea-ſide, within the land, upon the hils and mountains, and in the rivers, many of which have not onely their banks covered with them, but alſo the bottom of their chanels, and that for great ſpaces togeth r, which as they are of

all

all sizes and fashions, so of very different colours.

Sect. 6. Of the Slate.

In sundry parts of Ireland Slate is found in great abundance, and that nothing deep within the ground, just in the same manner as the Free-stone, so as it may be raised with little charge and labour; wherefore at all times it hath been much used by the English inhabitants for the covering of their houses and other buildings. Nevertheless some years since in places near the sea, especially at Dublin, that kind of Holland Tiles, which by them are called *Pannen* begun to be used generally, the Merchants causing them to be brought in from thence in great abundance, because in Ireland they had neither convenient stuff to make them of, nor work-men skilfull in that business: although the common Tiles usual in many parts of England and other Countries, were made and used in several places within the land.

Besides these there was another kind of covering in use, both for Churches and houses, to wit, a certain sort of woodden Tiles, vulgarly called Shingles; the which are thight enough at the first, but do not many yeares continue so, it being necessary to change them often: which thing properly not appertaining to this Chapter, we nevertheless for affinities sake have thought not amiss here to mention.

Some yeares ago another kind of Slate hath been discovered in Ireland, which for the colour-sake is called Black-slate, being of a blackish colour, which is come into great esteem, not so much

much for the ordinary use of covering houses, for which they are no better than common Slate, but because it hath been found by experience, very good and medicinall against severall diseases, especially to stay all kind of bleeding, and to hinder that after falls and bruises the blood do not congeal within the body.

Sect. 7. *Of the Sea-coal.*

The Trees and Woods having been so much destroyed in Ireland, as heretofore we have shewed, and consequently wood for firing being very dear in great part of the land, the inhabitants are necessitated to make use of other fuel, *viz.* of Turf, and of Sea-coals. Of the Turf we shall speak in the next Chapter. As for Sea-coals, they are the ordinary firing in Dublin & in other places lying near the sea, where the same in time of peace are brought in out of England, Wales, and Scotland, in great abundance, and therefore reasonable cheap; which is the reason, that the less care hath been taken to find out Coal-mines in Ireland it self, whereas otherwise it is the opinion of persons knowing in these matters, that if diligent search were made for them, in sundry parts of the land good Coal-mines would be discovered. This opinion is the more probable, because that already one Coal-mine hath bin found out in Ireland, a few yeares since, by meer hazard, and without having been sought for. The Mine is in the Province of Leinster, in the County of Carlo, seven miles from Idof, in the same hill where the Iron-mine was of Mr. *Christopher Wandsworth*, of whom hath been spoken above. In that Iron-mine, after that for a great while they

they had drawn Iron-oar out of it, and that by degrees they were gone deeper, at last in lieu of Oar they met with Sea-coal, so as ever since all the people dwelling in those parts have used it for their firing, finding it very cheap; for the load of an Irish-car, drawn by one Garron, did stand them, besides the charges of bringing it, in nine pence only, three pence to the digger, and six pence to the owner.

There be Coals enough in this Mine for to furnish a whole Country; nevertheless there is no use made of them further than among the neighbouring inhabitants; because the Mine being situated far from Rivers, the transportation is too chargeable by land.

These Coals are very heavy, and burn with little flame, but lye like Char-coal, and continue so the space of seven or eight hours, casting a very great and violent heat.

In the place where this Mine standeth, do lye little Smith-coals above the ground, dispersed every where in great quantity, from whence the Smiths dwelling in the parts round about did use to come and fetch them even before the Mine was discovered.

CHAP.

CHAP. XX.

Of the Turf, Lime, and Brick, and the manner of making those things in Ireland; item of the Glass made in Ireland.

Sect. 1. *Of the two sorts of Irish-turf.*

TUrf being very much used throughout all the land (as we have sayd before) is of two sorts, according to the difference of the Bogs out of the which it is taken. That which is taken out of the Dry-bogs, or Red-bogs, is light, spungy, of a reddish colour, kindleth easily, and burneth very clear, but doth not last.

The other to the contrary, which is raised out of the green or wet Bogs, is heavy, firm, black, doth not burn so soon, nor with so great a flame, but lasteth a great while, and maketh a very hot fire, and leaveth foul yellowish ashes.

It is the observation of women, that the linnen which is dryed by a fire made of this last sort of Turf, getteth a foul colour, be it never so white washed and bleeched, and groweth yellowish in that manner as that it can hardly be got out again.

Sect. 2. *The manner of making the Turf.*

The first sort of Turf costeth but little paines in the making; for being digged, and having lyen some dayes a drying (first spread out thin and single upon the ground, and afterwards piled up in little heaps) it is brought into the Barn.

But

But black Turf cannot be made without more trouble. First they mark out convenient places; for onely those are fit for it to which some paths do lead, and which in themselves are not too mirie, and too deep, but have a firm & sandy ground underneath, within the space of four or five feet, or thereabouts. Having found out such a place, if it be too watery, they make some trenches, into which the water descending out of that part of the Bog wherein they intend to work, may by them be carried to some place fit for to receive it; to the end that the Bog being thereby grown somewhat dryer and firmer, may the better bear the Labourers without sinking too deep into it. Then they fall to the business, dividing it so among the Labourers, that one part of them do dig out the earth, or rather the mud (for all the earth whereof this Turf is made, is thin and muddy) and by spades-full cast it on a heap, either by the side of the pit, or some where within the same, where others stand, who very well work it, turning it to and fro, and then with their shovels fill it into certain woodden trayes, amongst the English in Ireland peculiarly called Loffels; the which being full, another part of the Labourers draw the same, with great cords fastened to them, to some dry place within the Bog, or by the side thereof, where having poured out the mud, they go back to fetch more, and so go to and fro all day long. On that dry place where the mud is poured forth, sit certain women upon their knees, who mold the mud, using nothing else to it but their hands; between the which taking a part of it, they press them together in that manner, that their hands meeting a-

bove

bove, the turf is fashioned flat and broad beneath, growing narrower towards the top; which being done, the Turf is let lye upon the ground the space of a week or more, according as the weather is, and being reasonably well dryed, it is piled up in little heaps, leaving every where empty spaces between, that the air and the wind passing through them, they may dry the sooner.

Sect. 3. *The charges of making Turf.*

Ireland is so full of Bogs, that every man almost hath Bog enough upon his own land to make Turf for his family and for all his Tenants; so that the Turf doth cost most men no more than the hire of the Labourers who are employed about it. Those that begun early in the year, whilst the Labourers had but little employment, gave ordinarily, besides meat and drink, three pence sterling a day to every man, and two pence to every woman; four pence a day being the ordinary price, and when it was was at the deerest, five pence. Twenty men made in two or three dayes as much Turf as was sufficient for the whole years firing of a great family; of which number five men did dig and cast up the mud, five wrought it and filled it into the trays, and ten were busied in drawing the trays to the place where the Turf was molded by the women; who went so nimbly to work with it, that onely two of them were sufficient to keep twenty men at work.

Sect.

Sect. 4. *Of the Lime, and the manner of making it of Lime-stone.*

All the Lime in Ireland is made not of the shels of all sorts of shel-fish, as in Holland, and some other Countries, but onely of stone; and the gray Free-stone, whereof we have spoken in the precedent Chapter, is very fit for it, especially when it is not newly come out of the Quarrie, but taken off old buildings. But a peculiar sort of stone properly called Lime-stone, is best for it. This stone is of a gray colour, tending to a dark blew, which being broke, a white dust out of it doth fly abroad; and it is very common throughout all Ireland, but especially in the Provinces of Munster and Connaught, lying not deep within the ground, but very near to the surface of it, and in many places above ground.

The manner of burning it into Lime, usual over all Ireland, is this; In the side of some little height they make a great pit, round or square according as convenience is offered; of that bignes as may hold forty or fifty barrels; & of that fashion that being many feet wide at the top, it doth by degrees grow narrower towards the bottom, in the same manner as the Furnaces of the Iron-works. The inside of this pit they line round about with a wall built of Lime and Stone; at whose outside near the bottom a hole or door is left, by which to take out the ashes; and above that an iron-grate is laid, which cometh close to the wall round about: Upon this they lay a lay of Lime-stone (being first knockt asunder with a great iron hammer,

hammer, and broke into peeces of the bigneſs of a fiſt, or thereabouts) and upon that a lay of wood or turf, or a certain ſort of Sea-coal, the which being wonderfull ſmall, and peculiarly called Comb, is hardly uſed for any other purpoſe. Upon that they lay another of Lime-ſtone, and ſo by turns, untill the whole Kiln be filled, ever obſerving that the outmoſt lay be of wood, turf, or comb, and not of Lime-ſtone: which being done, the Kiln is ſet afire until all be burnt.

Sect. 5. *Another manner of burning Lime uſed in Ireland.*

There is another manner of burning Lime uſed in Ireland, in Kilns built altogether above ground, and incomparably bigger than the others, inſomuch as to the quantity of three hundred Barrels of Lime at once is made in them. In theſe Kilns they burn whole ſtones, without breaking them into peeces as the others, and that onely with wood (turf or comb not being fit for it) whereof they conſume a huge deal, it being neceſſary from time to time to put new wood into them, to which end three or four men day and night do ſtand by the Kiln to keep the fire from decaying or ſlackning.

Theſe (called French-kilns, becauſe the uſe of them was firſt received from thence) have ever their walls made of Lime-ſtone, the which in the ſame manner are turned into Lime, ſo as there remaineth nothing ſtanding of theſe Kilns after that the work is accompliſhed, and the Lime taken away.

Now

Now albeit that in these kilnes a very great quantity of Lime is made at a time, nevertheless it hath been found by experience, that they are much more unprofitable than the others, because they consume much more firing in proportion, through the continuall renewing of the fire, and require the constant labour of severall men all the while they are burning, which commonly is the space of three dayes and nights. For these reasons was the use of these kilnes, which never had been very generall in Ireland, more and more left off in these last yeares, and the others almost only made use of; in the which the Lime came to stand them, who burnt it, in no more then four pence the barrell at the most, all manner of expences being reckoned; & but three to them who had the best conveniences.

Sect. 6. *Of the Brick.*

In every part of Ireland there is found a kind of clay very fit for to make bricks, and all sorts of Potters-ware, although the Irish never had the wit or industrie to make use of it for either of these two ends; yea they have ever been so farre from making any earthen vessels, that even the use thereof hath been very rare amongst them, and to the most part unknown, not only before the comming in of the English, but also since, yea even untill these very last times; although a great number of English Potters in severall parts of the land had set up their trade, so as all kind of earthen ware was very common, and to be had at very easie rates.

And as for the Brick, they have been little used in Ireland even among the English themselves for

a great while; but of late years they begun to be very common, as well in the countrie, as in the Cities, especially Dublin, where all the new buildings (the which not only in handsomness, but also in number, doe surpass the old) are all made of Brick. But that which is made in Ireland, for the most part is not so good, as that of other Countries, not so much for any unfitness in the clay it self, as for want of handling and preparing it aright; as may easily be conceived by the following description of the manner they use to make it.

Sect. 7. *The manner how they make their Brick in Ireland.*

They dig a great square pit, taking away all the uppermost earth, untill they come to a good clay (which commonly lyeth one or two spits deep) This they digge up throughout the whole pit, and having broke it very small with the spade, they doe by degrees powre a great deal of water amongst it, working and labouring it together with the spade and their feet, till the whole mass become uniform, firm and tough like stiff dough; the which then in wheel barrowes is carried out of the pit to a place where certain long tables are set up, to each of which tables is allotted one man, one woman, & one boy. The woman taketh up the clay by handfulls, from the heap lying upon the ground, and reacheth it unto the man, who thrusteth it into a little wodden form without bottom, strawing now and then some sand upon the table, that the clay may not stick to it: and so having given them their due fashion, the boy doth carry them from thence

to a place, where he layeth them all upon the ground, not under any covert, but in the open air. After they have lyen some dayes, and are somewhat dryed, they are piled up in small heaps, twenty or thirty in a heap, making the heapes transparent in the same manner, as we have shewed above of the Turf. Some dayes after those little piles are made into greater, which are many feet long, and five or six feet high, but not above two feet, or two and a half broad (making the layes transparent, with some empty space between brick and brick, even so as in the small piles) the which at the top are covered over with straw, laying upon the straw broad green sods, to keep off the rain. Having lyen so untill they be quite dry, they make great ovens or Kilnes of them, filling them within with the same, strawing betwixt them of that small sort of Sea-caol, whereof wee have spoke heretofore, called Comb or Coome, and having covered over the kiln with the same clay, whereof the bricks are made, the thickness of two hand-broads or there-abouts, they set it afire with wood underneath, and continue the fire untill not only all the bricks piled within the Kiln, but all the walls quite through, and at the out-side as well as at the in-side, be perfectly burnt, and turned into good brick: wherein oftentimes, through the unskilfulness or neglect of those who make & fill these Kilns, and of those that govern the fire, there is great loss, and that two manner of ways. For sometimes great part of the Bricke is found not to be sufficiently nor uniformly burnt; and on the other side it falleth out oftentimes, that great quantities are reduced into one, beeing

burnt, or half-burnt into great unshapely masses or lumps, which are good for nothing.

They do commonly burn in those Kilns two or three hundred thousand Bricks at a time; the which for the most part, all charges being reckoned, come to stand betwixt six and eight shillings sterling the thousand.

Sect. 8. *Of the Glass made in Ireland.*

We shall conclude this chapter with the Glass, there having been severall Glass-houses set up by the English in Ireland, none in Dublin or other cities, but all of them in the countrie; amongst which the principall was that of Birre, a Market-town, otherwise called Parsonstown, after one Sir *Laurence Parsons*, who having purchased that Lordship, built a goodly house upon it; his son *William Parsons* having succeeded him in the possession of it; which Town is situate in Queens county, about fifty miles to the South-west of Dublin, upon the borders of the two Provinces of Leinster and Munster: From this place Dublin was furnished with all sorts of vvindovv and drinking-glasses, and such other as commonly are in use. One part of the materials, *viz.* the Sand, they had out of England; the other, to vvit the Ashes, they made in the place of Ash-tree, and used no other. The chiefest difficulty vvas, to get the clay for the pots to melt the materials in; this they had out of the North.

CHAP

CHAP. XXI.

Of the Temperature and Qualities of the Air, and Seasons in Ireland, as for Heat, Cold, and Moisture.

Sect 1. *Of the Cold weather, and the Frosts.*

ALthough the climate of Ireland is somewhat Northerly, the Land extending it self from the beginning of the one and fiftieth degree of Latitude, until the end of the five and fiftieth, nevertheless is the Air there very temperate, and nothing subject to violent Colds (not onely in Munster, Leinster, and Connaught, but even in the most Northern-part, to wit the Province of Ulster) much less than any other Land lying in the same height or latitude, yea than many Countries of a much more Southerly-climate.

True it is, that the Cold-weather doth commonly begin here somewhat soon, namely in the beginning of October, and sometimes in the middle or latter end of September, continuing ordinarily the space of five or six moneths, until the midst or latter end of March, and sometimes also good part of April; during which whole space of time all such persons as are chilly and cold of nature, and do sit still much, can hardly be any long while without a fire.

But again on the other side, it is very seldom violently cold there, and freezeth but little: there are commonly three or four Frosts in one Winter; but they are very short, seldom lasting longer than three or four days together, & with-

all at their very worſt nothing near ſo violent as in moſt other Countries; ſo that ſome all Winter long hardly come near a fire once in a day; and that not only in the ordinary cold weather, but even whilſt it is a freezing.

Yea many times the cold is ſo ſlack even in the midſt of the Winter-moneths, that by walking onely, or doing ſome other moderate exerciſe, you ſhall find your ſelf as warm, and the Air as ſweet and pleaſant, as if it were in the moneth of May.

There hath been ſome Winters, wherein it hath frozen ten or twelve dayes together, ſo as the Liffie, and other the like Rivers were quite frozen, and might be gone upon by men and beaſts: But thoſe are altogether extraordinary, and do come very ſeldom, hardly once in the ſpace of ten or twelve years.

But how mild they ordinarily be, and how little ſubject to exceſſive cold, may appear hereby, that all kind of beaſts and cattle, as cows, horſes, and ſheep, do there all Winter long remain abroad, and do feed in the fields, where they are left in the night-time as well as in the day, and that many herbs, which in England and Netherland do dye every Winter, here continue all the year long.

Sect. 2. *Of the Warm-weather.*

And as the cold in Winter is very moderate and tolerable, ſo is alſo the heat in Summer; the which is ſeldom ſo great, even in the hotteſt times of the year, as to be greatly troubleſome. And it falleth out oft enough in the very Summer-moneths, that the weather is more inclinable

to

to cold than to heat, so as one may very well endure to come near a good fire. And this cometh to pass only during the Wet-weather, for else, and whilst it is fair, it is very warm all summer long, albeit seldom over-hot: And so it is many times also even on the rainie dayes, whereas for the most part it is very cool in them, and the heat much less than the season doth require.

Sect. 3. *Of the Rain and Wet-weather.*

The Rain is very ordinary in Ireland, and it raineth there very much all the year long, in the Summer as well as in the Winter. Commonly in the Spring of the year it is very fair weather, with clear sun-shine from morning till night, for the space of five or six weeks together, with very little or no interruption; which fair weather beginneth commonly in the moneth of March, some years in the beginning, other yeares in the midst, and sometimes in the latter end of it. But the same being once past, it raineth afterwards very much all the Summer long, so as it is a rare thing to see a whole week pass without it; and many Summers it is never dry weather two or three dayes together. Which inconstancy and wetness of the weather is not only troublesome to men, but also hurtfull to all things growing out of the ground for mans behoof. For the heat never being very great, and there besides often interrupted by the intervention of the foul weather, hath neither time nor strength enough to ripen them so well and so soon, as otherwise it would; whereby it cometh to pass, that as well the fruits of trees, as the corn and grass, here commonly much later do come to perfecti-

on, than in the moſt part of other neighbouring Countries. And as the ripeneſs of the fruits and other increaſe of the earth is greatly retarded by the abundance of unſeaſonable rain; ſo it doth alſo fall out oftentimes, that the ſame being come to ripeneſs, it is difficult to get them in, by reaſon of the exceeding ſtore of rain which doth come down during the Hay-time and the Harveſt. Wherefore it behoveth one here to be wonderfull diligent, and not to loſe any part of the fair weather: For elſe one would run great hazard to ſuſtain great loſſes, and to have all ſpoyled. But thoſe that are vigilant and carefull, and that loſe no occaſion at all, do commonly in the end get in their increaſe well enough, notwithſtanding all thoſe great hinderances; ſo that there be as few years of dearth in Ireland, as in any other Country of Chriſtendom; and moſt years there is not only Corn enough got for the ſuſtenance of the Inhabitants, but a great deal over and above, for the ſending out of great quantities of Grains into other countries.

Sect. 4. *Of the fair weather in the latter end of Autumn. In the foul weather the nights are often fair.*

In the latter end of Autumn weather is commonly fair again for ſome weeks together, in the ſame manner as in the Spring, but not ſo long; which as it doth ſerve for to dry up, and to get in the Corn and Hay, which till then hath remained in the fields, the too much wet having hindered it from being brought away ſooner; ſo it giveth the opportunity of plowing the ground, and ſowing the Winter-corn; the which other-

otherwise would very hardly be done.

For that season being once past, you have very little dry weather the rest of the Autumn, and during all Winter. And although it doth seldom rain continually for many dayes together, yet is the wetness very great, and few weekes doe pass, wherein are not two or three rainy dayes. And it is to be observed, that ordinarily it raineth in Ireland much more by day than by night; and that many times when it doth rain two or three dayes together, the nights between are very clear and fair; the which also many times falleth out in other foul weather, and when all day long the Skie is overcast with Clouds and Mists.

Sect. 5. *Some dry Summers in Ireland, but hardly ever any too dry.*

But although it is ordinarily thus in Ireland; yet the same inconstancy and variablenes of years and seasons, which is observed in most other Countries, doth also here occur, and that more in regard of the Summers & dry weather, than of the Winters and cold. For it is marvellous seldom to have there a hard Winter and long frost; but Summers have been which were ful of very dry, and fair, and pleasant weather. But as Winters cruelly cold, so likewise over-dry Summers do in this Iland hardly come once in an Age; And it is a common saying in Ireland, that the very dryest Summers there never hurt the land: For although the Corn and Grass upon the high and dry grounds may get harm, nevertheless the Country in generall gets more good than hurt by it: And when any dearths fall out to be in

Ireland, they are not cauſed through immoderate heat and drought, as in moſt other Countries, but through too much wet, and exceſſive rain.

Sect. 6. *Amendment of the wet Air in Ireland how to be expected.*

So that the Iriſh-air is greatly defectuous in this part, and too much ſubject to wet and rainy weather; wherein if it were of ſomewhat a better temperature, and as free from too much wet, as it is from exceſſive cold, it would be one of the ſweeteſt and pleaſanteſt in the whole world, and very few Countries could be named, that might be compared with Ireland for agreeable temperateneſs. And although it is unlikely, that any revolution of times will produce any conſiderable alteration in this (the which indeed in ſome other Countries hath cauſed wonderfull changes) becauſe that thoſe who many Ages ago have written of this Iland, doe witneſs the ſelf ſame things of it in this particular, as wee doe find in our time: There is neverthelefs great probability that this defect may in part be amended by the induſtry of men, if the country being once inhabited throughout by a civill Nation, care were taken every where to diminiſh and take away the ſuperfluous and exceſſive wetneſs of the ground, in all the watery and boggy places, whereby this too great moyſtneſs of the Air is greatly increaſed, and partly alſo occaſiond

This opinion is not grounded upon ſome uncertain ſpeculation, but upon aſſured experience; for ſeverall knowing and credible perſons have

have affirmed to me, that already ſome yeares ſince good beginnings have been ſeen of it; and that in ſome parts of the land well inhabited with Engliſh, and where great extents of Bogs have been drained and reduced to dry land, it hath been found by the obſervation of ſome years one after another, that they have had a dryer air, and much leſs troubled with rain, than in former times.

Herewith agreeth what we read in that famous Writer *Pliny*, in the fourth Chapter of the ſeventeenth Book of his Naturall Hiſtory, concerning that part of Macedonie, wherein the City *Philippi* was ſeated; where the Air formerly having been very rainie, was greatly amended by the altering the wetneſs of the ground: His words are theſe, *Circa Philippos cultura ſiccata regio, mutavit cœli habitum*: That is, word for word, *The Country about Philippi being dryed up through tillage, hath altered the quality of the Air.*

CHAP. XXII.

Of the Dew, Miſt, Snow, Hail, Hoar-froſt, Thunder and Lightning, Earthquake and Winds.

Sect. 1. *Of the Dew.*

THe Naturaliſts and Geographers do aſſure us, that it deweth exceedingly in the hot and dry Countries, and that the leſs it uſeth to rain in a Country, the Dew doth fall there the

the more abundantly; whereby it should seem to follow, that in the wet climate it deweth very little, and consequently that in Ireland, where it raineth so very much, the Dew must be very scanty. But there is as much Dew there, as in other Countries that are a great deal hotter and dryer. Onely thus much experience doth shew in Ireland (and it may be as well in other Countries, whereof I have not yet informed my self) that when it is towards any great rain, little or no Dew doth fall; so as in those times going forth early in the morning into the green fields, you will finde them altogether dry, and that even in that season, wherein the Dew in Ireland, as in other neighbouring Countries, useth to fall more abundantly, than in any other time of the year, to wit in the moneths of May and June: This is a certain sign to the inhabitants, that great rain is to fall suddenly; and commonly after such a dry and dewless night it useth to rain two or three days together. But the preceding rain doth not hinder the Dew in that manner, as that which is imminent; and it is found ordinarily, that in a clear night following a rainy day (the which is very ordinary, as we have sayd in the preceding Chapter) the Dew commeth down as liberally as if it had not rained the day before.

Sect. 2. *Of May-dew, and the manner of gathering, and preserving it.*

The English women, and Gentlewomen in Ireland, as in England, did use in the beginning of the Summer to gather good store of Dew, to keep it by them all the year after for several

ſeveral good uſes both of phyſick and otherwiſe, wherein by experience they have learnt it to be very available. Their manner of collecting and keeping it was this. In the moneth of May eſpecially, and alſo in part of the moneth of June, they would go forth betimes in the morning, and before Sun-riſing, into a green field, and there either with their hands ſtrike off the Dew from the tops of the herbs into a diſh, or elſe throwing clean linnen clothes upon the ground, take off the Dew from the herbs into them, and afterwards wring it out into diſhes; and thus they continue their work untill they have got a ſufficient quantity of Dew according to their intentions. That which is gotten from the graſs will ſerve, but they chuſe rather to have it from the green corn, eſpecially Wheat, if they can have the conveniency to do ſo, as being perſwaded that this Dew hath more vertues, and is better for all purpoſes, than that which hath been collected from the graſs or other herbs. The Dew thus gathered they put into a glaſs bottle, and ſo ſet it in a place where it may have the warm Sun-ſhine all day long, keeping it there all the Summer; after ſome dayes reſt ſome dregs and dirt will ſettle to the bottom; the which when they perceive, they pour off all the clear Dew into another veſſel, and fling away thoſe ſetlings. This they doe often, becauſe the Dew doth not purge it ſelf perfectly in a few dayes, but by degrees, ſo as new dregs (ſevered from the purer parts by the working of the Dew, helped on by the Sun-beams) do ſettle again; of the

which

which as often as thoſe good women ſee any notable quantity, they ſtill powre off the clear Dew from them: doing thus all Summer long, untill it be clear to the bottom.

The Dew thus thoroughly purified looketh whitiſh, and kepeth good for a year or two after.

Sect. 4. *Of the Miſts and Fogs.*

We have ſhewed how much Ireland is ſubject to Rain, and ſo it is likewiſe to dark weather, and overcaſting of the air even when it raineth not, which continueth ſometimes many dayes together, eſpecially in Winter-time.

But as for the Fogs & Miſts, Ireland is no more troubled with them than other regions, eſpecially in the plain countrie, for in the mountaines they are much more frequent, ſo that oftentimes they are covered with them for a great way, the ſpace of ſome houres together, when at the ſame time there is none in the neighbouring plain countrie, and in the high mountaines it commeth many times to paſs that in a fair day the top thereof for a long time together is covered over with a thick Miſt, when not only the adjacent country, but even the lower part of thoſe mountains doe njoy a clear Sun-ſhine. And ſometimes it befalleth the tops as well as the lower parts beeing free from them, the middle parts are quite covered there-with: as my brother in his travels hath many times obſerved in ſeverall parts, eſpecially upon thoſe high mountaines between Dundalke and Carlingford, as well in the midſt of the Summer, as at other times of the year.

And in many places it is found by experience that,

that the like Fogs upon the tops of the mountaines is a fore-runner of rain in the next country: whereof all those who have lived any time at Dublin, may have good knowledge. For seldom a mist appeareth upon the top of the Wickloe-mountains, situated some five or six miles to the South of Dublin, or of the head of both, without beeing followed with rain at Dublin and the adjacent parts within 24. houres: wherein is observable, that a Fog quite covering those mountaines all over is not so sure a signe of Rain, as when it is only upon the top: and that those generall Mists upon the mountains are often seen without any following Rain, the which very seldom or never happeneth in the others.

There be two sorts of Mists or Fogs in Ireland: the one is uniform and constant, quite filling the air of all sides, whereby all manner of prospect is taken away, and continuing after the same fashion, untill it vanish by degrees, either ascending up into the Air, or falling to the ground; whereof here, as in other countries, the first is commonly followed with Rain, and the second with fair weather

In the other sort are great parcells or flakes of foggie vapours scattered up and down the Air, with clear spaces betwixt: the which flakes doe not keep one place, but fly to and fro, according as they are driven by the wind, and that sometimes very swiftly; this kind of Fog doth arise not only upon the seaside, but also within the land, and upon the mountaines: oftentimes turning into a generall mist.

Sect.

Sect. 4. *Of the Snow, Hail, and Hoar-frost.*

For the most part there falleth no great store of Snow in Ireland, and some yeares none at all, especially in the plain countries. In the mountaines there is commonly greater plenty of Snow, than in other parts, So that all kind of cattle, doe all winter long remain there abroad, being seldome troubled with very great frost or snow, and doe feed in the fields night and day, as wee have related more amply above; yet it hath happened that in a winter, one of many, abundance of snow hath fallen, instance that of the year 1635 where about the latter end of Ianuary and the beginning of February great store of snow did fall to the great damage of the cattle, chiefly in the Northern parts (where it did snow most exceedingly) so as the People were put to hard shifts to bring their cattle in safety to their folds and other covered places, One history among the rest by reason of the strangeness of it, I thinke will not be improper to relate as it hath been affirmed to me by very credible persons, A Gentleman living about Ballaneah in the County of Cavan, took great pains to save his sheep, yet miſſed eleven of them; some dayes after being come forth to course, his man saw from afarre off upon a hill, in a hollow place of a rock, part of it being covered with the top hanging over it, something alive and stirring, they thought it had been a Hare or a Fox, but comming neer they found it was the lost sheep, the which had sheer eaten away all the wool from one anothers back (being destitute of all other food, all round about being covered with deep snow)

and

and which is more wonderfull one of them being dead, the reſt did eat her fleſh, leaving nothing but the bar bones.

It doth alſo longer continue there: ſo as it is an ordinary thing in thoſe by Dublin, and all other high mountaines throughout the Land, to ſee the Snow lying upon the tops of them many dayes, yea weekes, after that in the nether parts and plain countrie it is thawed and quite vaniſhed.

It Haileth there but ſeldome, and in thinne ſhort ſhoures, the hail-ſtones alſo being very little.

As for the Hoar-froſt, that is as common here, as in other countries, and that not only in the coldeſt months, and during the froſt, but even in the Spring: ſo as commonly during all the fair weather of that ſeaſon, of ſome weeks together, whereof wee have ſpoke heretofore, every morning all the green herbs of the gardens and fields are quite covered over with it.

Sect. 5. *Of the Thunder, Lightning, and Earthquakes.*

Ireland is as litle ſubject to Thunder and lightning, as any other countrie in the world, for it is a common thing, to ſee whole yeares paſs without them, and in thoſe yeares, where-in any are, one ſhall ſeldome have them above once or twice in a Summer, and that with ſo weak noiſe of the thunder, and ſo feeble a ſhining of the Lightning, that even the moſt fearfull perſons are hardly frightned at all there-by, much leſs any harm done to men or beaſts.

From Earthquakes this Land is not altogether exempt; but withall they are ſo ſeldom, that they hardly

hardly come once in an age: and it is so long agoe since the last of all was, that it is as much as the most aged persons now alive can even remember.

Sect. 6. *Of the Winds.*

With Winds it is in this countrie almost as with Rain, Ireland not only having its share in them, as other countries, but being very much subject to them, more than most other parts of the world. For the Winds blow very much at all times of the year, especially in the Winter months, when also there are many stormes, which sometimes doe continue severall dayes together.

And it is worth the observation, that not only storm-winds, but others also, do in Ireland much seldomer blow out of the East, than out of the West, especiall in the winter; so that commonly there is no need of a wind to be wafted over into England: where to the contrary, those, who out of England will come over into Ireland, very ordinarily are constrained to wait two or three weeks, and sometimes five or six weeks, yea it hath faln out so more than once, that in two whole months, and longer, there hath not been so much East-wind, as to carry ships out of England into Ireland: notable instances whereof the History of the first conquest of Ireland, and that of the Lord Mountjoy, subduer of Tirone's rebellion, doth afford.

But in the Summer-time, and chiefly in the Spring, and in the months of March, Aprill, and May, one is not so much subject to that incommodity, as in the other times of the year.

And as the West-winds are much more com-

mon

mon in Ireland, especially upon this coast lying over against Great-Britain, than the East; so likewise the South winds are much more ordinary there, than the North: which two winds there doe seldome blow alone, but for the most part doe accompany one of the two other, especially the North-wind, the which also doth oftner join it self with the East than with the West-wind.

CHAP. XXIII.

Of the Healthfulness of Ireland, and what Sicknesses it is free from, and subject unto.

Sect. 1. *Many old and Healthfull people in Ireland.*

ALthough Ireland is obnoxious to excessive wetness, nevertheless it is very wholsome for the habitation of Men, as clearly doth appear by that there are as few sickly persons, and as many people live to a great age, as in any of the neighbouring Countries: For both men and women, setting those aside who through idleness and intemperance do shorten their dayes, attain here for the most part to a fair age, very many living to be very old, and to pass not only the age of fourscore, but of fourscore and ten; and severall there are found at all times, who doe very near reach an hundred yeares, some out-living and passing them. And the most part of those aged persons are in very good disposition, injoying not only their health, but also the use of their

limbs, ſenſes, and underſtanding, even to their utmoſt yeares. Among the women there are ſeverall found, who do retain not only their cuſtomary purgations, but even their fruitfullneſs, above the age of fifty yeares, and ſome untill that of ſixty: my Brother hath known ſome, who being above three-ſcore yeares old, have not only conceived, and brought forth children, but nurſed them, and brought them up with their own milk, being wonderfull rare and almoſt unheard-of in other Countries.

Sect. 2. *Ireland free from ſeverall Diſeaſes.*

Irelands Healthfullneſs doth further appear by this particular, that ſeverall diſeaſes, very common in other countries, are here very rare, and partly altogether unknown. For the Scurvy, an evill ſo generall in all other Northerly countries confining upon the Sea, is untill this day utterly unknown in Ireland.

So is the Quartan Ague, the which is ordinary in England, and in ſeverall parts of it doth very much reign at all times.

As for the Tertian Ague, it was heretofore as litle known in Ireland as the Quartan: but ſome yeares ſince, I know not through what ſecret change, it hath found acceſs into this Iland, ſo that at this time ſome are taken with it, but nothing neer ſo ordinarily as in other Countries.

The Plague, which ſo often and ſo cruelly infecteth England, to ſay nothing of remoter countries, is wonderfull rare in Ireland, and hardly ſeen once in an age.

Sect.

Sect. 3 *The immunity from certain Diſeaſes conſiſteth in the Air, not in the bodies of the people.*

It is obſervable concerning the fore-mentioned particular, that this privilege, of being free from ſeverall Diſeaſes, doth not conſiſt in any peculiar quality of the bodies of men, but proceedeth from ſome hidden property of the Land and the Air it ſelf. This is made manifeſt two manner of wayes, firſt, in that ſtrangers comming into Ireland, doe partake of this ſame exemption; and as long as they continue there, are as free of thoſe evills, from which that climat is exempt, as the Iriſh themſelves. Secondly, in that the natives, born and brought up in Ireland, comming into other countries, are found to be ſubject unto thoſe diſeaſes as well as other people, and I have known ſeverall of them, who being come hither into England, have fallen into the Quartan Ague, and have as long and as badly been troubled with it, as ordinarily any Engliſhman uſeth to be.

And credible perſons have affirmed unto me the ſame of Scotland, namely that the Quartan Ague never having been ſeen there, the Scotchmen nevertheleſs in other countries are as obnoxious to it, as people of any other Nation.

Sect. 4. *The moſt part of all kind of Diſeaſes are found in Ireland as in other Countries.*

True it is, notwithſtanding that privilege of being exempt from certain evills, that the moſt part of diſeaſes and infirmities, where-

unto mans body is ſubject in other Countries, are alſo found in Ireland, as wel outward as inward; and in the number of the inward not only the ſuddain ones, and thoſe that in a few dayes or weeks come to an end, being called *Morbi Acuti* by the Phyſicians, as namely Feavers, Caſting of blood, Apoplexies, and others of that nature; but alſo thoſe of long continuance, as the Falling-ſickneſs, the Palſie, all ſorts of Gout, Coughs, the Conſumption of the Lungs, the Stone of the Kidneys and of the Bladder, the Colick, the Iaundis, the Dropſie, the grief of the Spleen, and ſeverall ſorts of Looſneſſes, with all which Evills it is here as in other Countries, ſome of them being very common here, and others happening but ſeldom, and in few perſons: the more particular relation whereof wee will leave for the books of Phyſick, and for thoſe Obſervations, which perhaps my Brother ſome time or other will publiſh, of what he hath found concerning theſe matters, in an ample and flouriſhing practice of eight yeares, which he hath lived in Dublin.

CHAP. XXIIII.

Of the Diſeaſes reigning in Ireland, and whereunto that country is peculiarly ſubject.

Sect. 1. *Of the Iriſh Agues.*

AS Ireland is ſubject to moſt diſeaſes in common with other Countries, ſo there are ſome, whereunto it is peculiarly obnoxious, being at all

all times ſo rife there, that they may juſtly be reputed for Irelands *Endemii Morbi* or reigning Diſeaſes, as indeed they are generally reputed for ſuch.

Of this number is a certain ſort of Malignant Feavers, vulgarly in Ireland called Iriſh Agues, becauſe that at all times they are ſo common in Ireland, as well among the Inhabitants and the Natives, as among thoſe who are newly come thither from other countries. This Feaver commonly accompanied with a great pain in the head and in all the bones, great weakneſs, drought, loſſe of all manner of appetite, and want of ſleep, and for the moſt part idleneſs or raving, and reſtleſneſs or toſſings, but no very great nor conſtant heat, is hard to be cured, for thoſe that underſtand the diſeaſe, and ſeek to overcome it, do it not by purging, which cannot be uſed at any time without great and preſent danger; for the fermentation of the humors which cauſeth the diſeaſe, is hereby mightily increaſed, and the patient weakned; and hardly with bleeding, which ſeldom is uſed with ſucceſs otherwiſe than in the very beginning; but with ſtrengthning medicines and good cordials: in which caſe, and if all neceſſary preſcriptious be well obſerved, very few perſons doe loſe their lives; except when ſome extraordinary and peſtilent malignity commeth to it, as it befalleth in ſome yeares, with ſo great violence, that notwithſtanding all good helps, ſome are thereby carried to their graves; the ſame doth ordinarily come to paſs, that it proveth deadly, if the Sick doe fall into unskilfull hands, or neglect all help, or do not obſerve good directions; in which caſes many do periſh: and

others, who come off with their lives through robuſtuouſneſs of nature, or hidden cauſes, are forced to keep their beds a long time in extreme weakneſs, being a great while before they can recover their perfect health and ſtrength.

Sect. 2. *Of the Looſneſs.*

The Looſneſs doth alſo greatly reign in Ireland, as well among thoſe of the countrie as among the Strangers, wherfore the Engliſh inhabitants have given it the name of The country-diſeaſe. Many are a great while troubled with it, and yet get no other harm: and thoſe that betimes doe make uſe of good medicines, are without any great difficulty cured of it. But they that let the Looſneſs take its courſe, do commonly after ſome dayes get the bleeding with it, whereby the diſeaſe doth not only grow much more troubleſome and painfull, but a great deal harder to be cured; & at laſt it uſeth to turn to the Bloody flux, the which in ſome perſons, having laſted a great while, leaveth them of it ſelf; but in farre the greateſt number is very dangerous, and killeth the moſt part of the ſick, except they be carefully aſſiſted with good remedies.

That this diſeaſe, as alſo the other, *viz.* the Malignant Feavers, are ſo rife in Ireland, doth partly come through the peculiar diſpoſition and exceſſive wetneſs of the Air; but partly alſo through the errours which people do commit in eating and drinking, and other particulars: as manifeſtly doth appear by that a very great number, not only of the Natives, but alſo of the Strangers comming thither, who take carefull heed to themſelves in abſtaining from hurtfull things, never are troubled

troubled with either of theſe infirmities.

Sect. 3. *Of the Rickets.*

Among the reigning diſeaſes of Ireland the Rickets alſo may with good reaſon be reckoned, a diſeaſe peculiar to young children, and ſo well known to every body in England, as it is needleſs to give any deſcription of it; and yet to this day never any Phyſician, either Engliſh or of any other nation, made any the leaſt mention of it, no not in theſe works which are expreſly written of all manner of diſeaſes and accidents of litle children.

In Ireland this diſeaſe is wonderfull rife now, but it hath nothing neer been ſo long known there as in England, either through the unskifullneſs or neglect of the Phyſicians (the moſt part wherof in both kingdomes to this day are ignorant not onely of the manner how to cure it, but even of the nature and property thereof) or that really it is new there, and never before having been in Ireland, hath got footing in it only within theſe few yeares, through ſome ſtrange revolution or conſtellation, or Gods immediat ſending: which kind of changes ſeverall times have befaln in divers Countries, and in Ireland it ſelf wee have alreadie ſhewed ſome ſuch matter in another ſickneſs, namely the Tertian-Ague.

This evill being altogether incurable, when it is gon too farre, is hard enough to be cured even in the beginning, except it be very carefully looked unto, and uſe made of the beſt remedies; nevertheleſs this grief, as well as moſt others, hath its peculiar medicines, the which being applied

applied betimes, and with convenient care, do with Gods bleſſing for the moſt part produce the effect deſired.

Sect. 4. *Of the Leproſie*

The Rickets are of late very riſe in Ireland, where few yeares agoe unknown; ſo on the contrary it hath been almoſt quite freed from another diſeaſe, one of the very worſt & miſerableſt in the world, namely the Leproſie, which in former times uſed to bee very common there, eſpecially in the Province of Munſter; the which therefore was filled with Hoſpitals, expreſly built for to receive & keep the Leprous perſons. But many yeares ſince Ireland hath been almoſt quite freed from this horrible and loathſome diſeaſe, and as few Leprous perſons are now found there, as in any other Countrie in the world; ſo that be Hoſpitals erected for their uſe, having ſtood empty a long time, at length are quite decayed & come to nothing. The cauſe of th s change is not ſo obſcure nor unknown, as it is in moſt other changes of that nature. For that this ſickneſs was ſo generall in Ireland, did not come by any peculiar defect in the Land or in the Air, but meerly through the fault & foul gluttony of the inhabitants, in the exceſſive devouring of unwholeſome Salmons. The common report in Ireland is, that boiled Salmons eaten hot out of the Kettle in great quantity, bring this diſeaſe, and uſed to be the cauſe why it was ſo common: and ſome famous Authors have not ſtuck to relate as much for a truth. But that is a fable, and Salmons have not that evill quality, which way ſoever they be eaten and prepared, but when they are out of ſeaſon, which

which is in the latter end of the year, after they have caſt their ſpawn: upon which they doe not onely grow very weak and flaggie, but ſo unwholeſome, that over their whole body they break out in very filthy ſpots, juſt like a ſcalled mans head, ſo as it would loath any man to ſee them; nevertheleſs the Iriſh, a nation extremely barbarous in all the parts of their life, did uſe to take them in that very ſeaſon, as well as at any other time of the year, and to eat them in very great abundance, as eaſily they might, every river and rivelet in moſt parts being very full of them, and by that meanes that horrible diſeaſe came to be ſo common amongſt them. But the Engliſh having once gotten the command of the whole Countrie into their hands, made very ſevere laws againſt the taking of Salmons in that unwholeſome ſeaſon, and ſaw them carefully obſerved; whereby hindering thoſe barbarians againſt their will to feed on that poyſonous meat, they were the cauſe that that woefull ſickneſs, which uſed ſo mightily to reign amongſt them, hath in time been almoſt quite aboliſhed: which great benefit, with ſo many others, that hatefull people hath rewarded with ſeeking utterly to exterminate their benefactors.

Sect. 5. *Of the Leaguer-Sickneſſes.*

In the Engliſh Armies, which ſince this bloody Rebellion went over into Ireland to fight againſt that murdering Nation, were not only the Looſneſs and the Malignant Feaver, whereof wee have ſpoke above as of Irelands reigning diſeaſes, very common, but there-beſides ſeverall other infirmities, *viz.* violent Coughs and of long continuance,

tinuance, Stopping of the Breath, called in latin *Dispnoea*, Lameneſs of the thighs or *Sciatica*, painfull Stranguries, all which griefes ſeized on ſo many perſons, that they might well have been taken for ſickneſſes reigning in that land; as I have many times underſtood of my Brother, who at that time not only dwelling and practiſing at Dublin, but being Phyſician generall of the Engliſh Forces, had but too much occaſion to know that perfectly.

But withall he hath aſſured me, that thoſe diſeaſes had their originall not from any defect of the climate, but of the cold, & other hardſhip, which the ſoldiers ſuffered in their marches; for they many times going to the fields in cold and foul weather, and ſometimes marching whole dayes long, yea ſeverall dayes together, in very dirty and wet wayes, where their feet and legs were continually cold and wet, beſides that they were ſometimes conſtrained to paſs through the water up as high as the knees and waſte, and after all that hardſhip endured in the day-time, to lye in the night upon the wet ground in the open air, this cauſed the aforenamed diſeaſes, and ſeverall others amongſt them, in ſo great number, it being to be wondred at, that many more did not fall into them. And without doubt in any other countrie of the world, where all the ſame cauſes did concurre, and where an Armie indured the like hard-ſhip, the ſame effects, if not worſe, would follow: ſo that in this behalf the Land it ſelf is not at all to be blamed.

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